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Accurate Information for Fine Modelbuilding—Nov/Dec 1980

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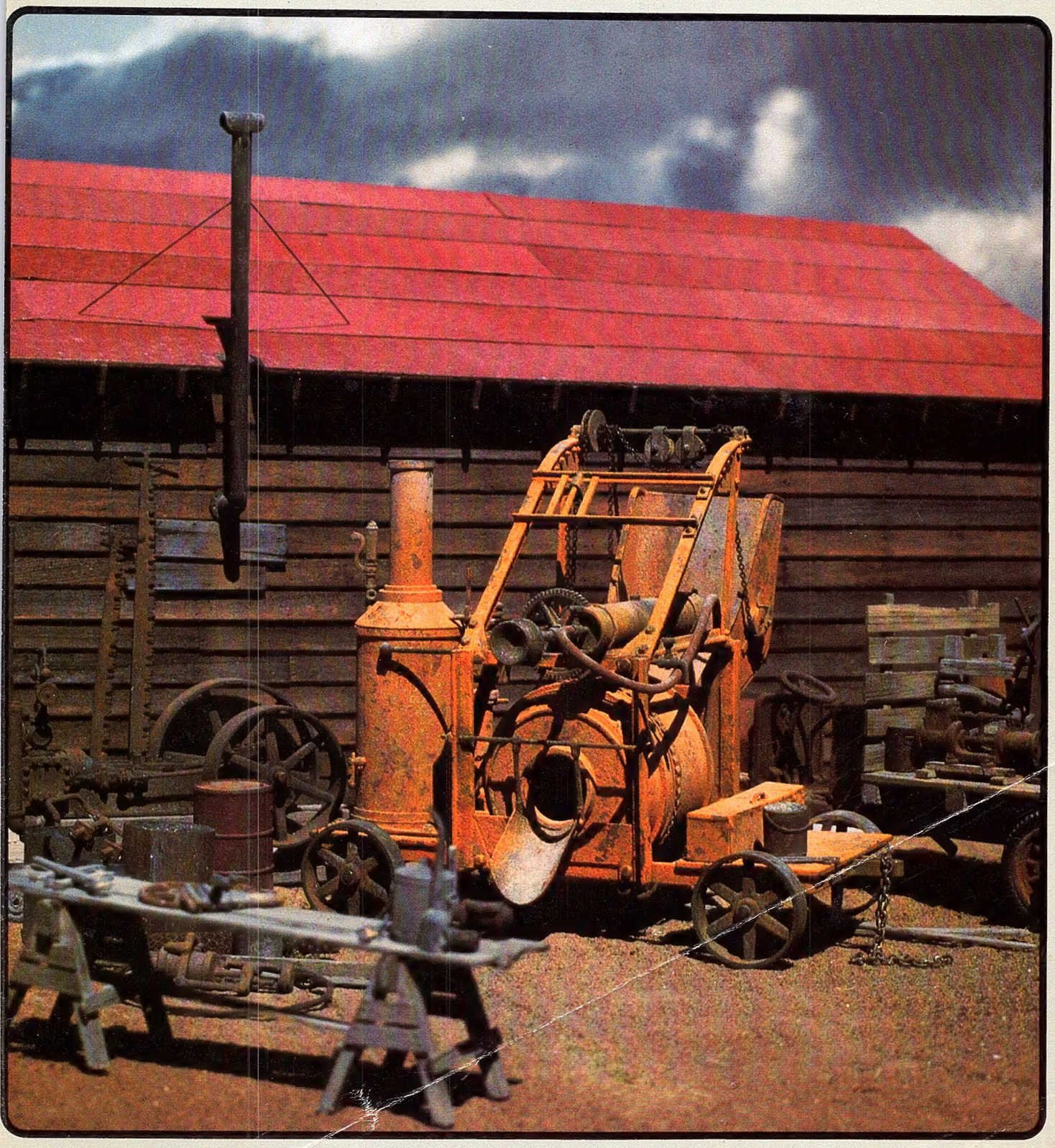

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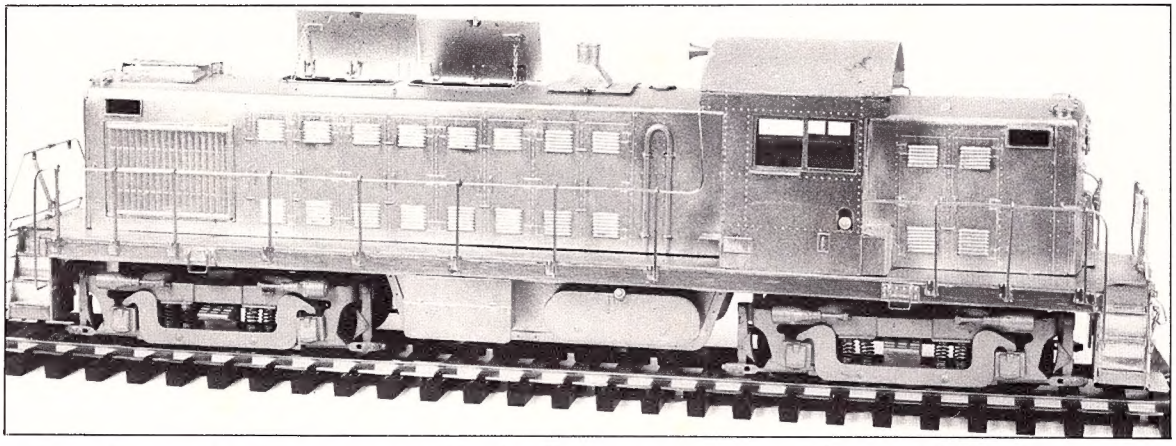

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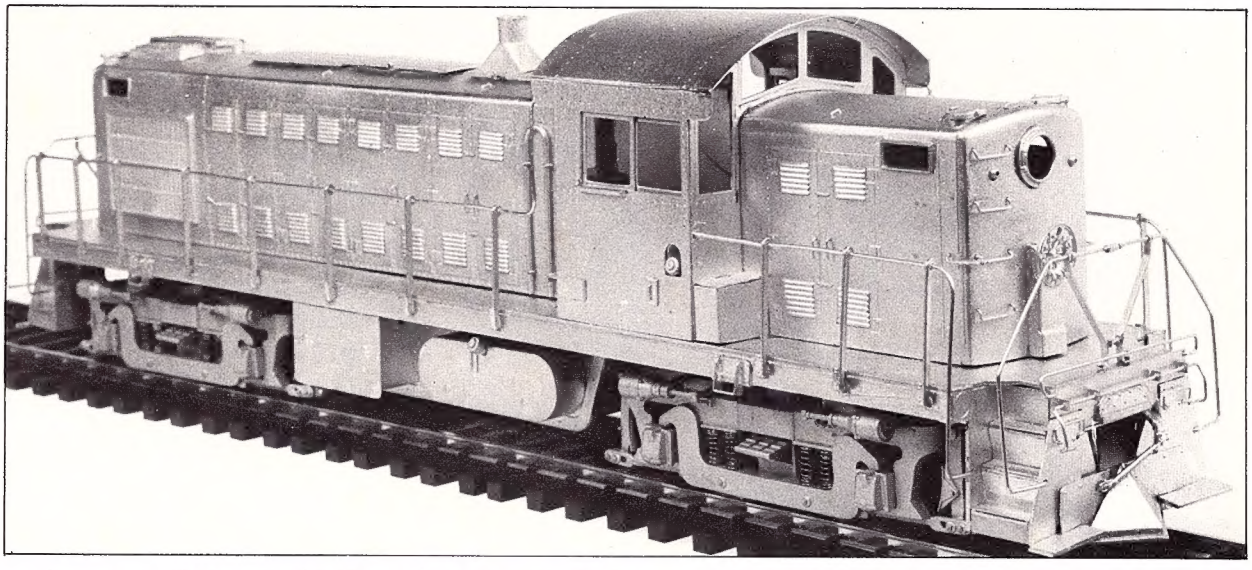

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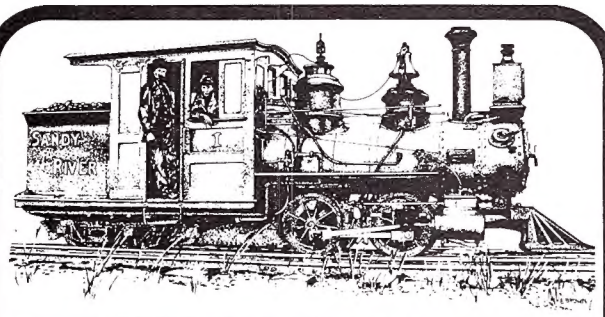

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COVER

Selecting worthwhile prototypes is one of the most important steps in building beautiful models. This month's cover shows a model based on such a worthwhile prototype. This common steam-powered cement mixer was built as an uncommon model by Gary Nash. Gary describes the techniques he used to build this model on page 42.

Psst . . . The NARROW GAUGE & SHORTLINE GAZETTE is more than a model railroad magazine – it's a fellowship of fine modelers. Pass it on . . .

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☐ **MAY/JUNE 1979** – D&RG & D&RGW Cabooses, V&T Box Car #1011, Assembling the Kemtron 0-6-0T Kit, Western Sawmill, Logging Mallets Part 10, Tonopah & Tucumcari, Notes on Precision Scale Diorama.

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☐ **NOVEMBER/DECEMBER 1979** – Stambaugh Garage, Tips to Winning a Blue Ribbon, Styrene Structure Building, Bridgton & Saco River RR, Building Phillips Part 1, Logging Mallets Part 11, Bellevue & Cascade Part 3, Observations on On3 Iron Horse K-37, C-19 Becomes #41 Part 5.

☐ **JANUARY/FEBRUARY 1980** – C&NW in Black Hills Part 1, Old Stone Store at Buffalo Colorado, Forks Creek Station & Eating House, Prototype Mix of Equipment, On3 Rotary by Durango Press, Framing Phillips, C-19 Becomes #41 Part 6, Building Ariel.

☐ **MARCH/APRIL 1980** – On30 Gauge Mogul, Forks Creek Section House, HOn3 C-25 Rebuild, Magic of the Rio Grande, C&NW Part 2, Phillips Trackwork, Woss Camp Water Tank, Logging Mallets Part 12, Industrial Tramways.

☐ **MAY/JUNE 1980** – Car Ferry for a Ferry Slip, Lettering Cars, Turnouts & Turnout Control, C&S Coal Cars, Dog Hole Steamer, Bellefonte Central RR, Debugging a Mason Bogie, Solderless Locomotive Construction, Rock Formations.

☐ **JULY/AUGUST 1980** – V&T for Modelers, Forney Affair, Barrels & Steel Drums, West Side Shays, Black Hawk Station, Car Ferry Part 2, Modifying the Northwest Short Line Quartering Jig, HOn30 Two Foot, Stovepipe Canyon, Bridgton & Harrison.

☐ **SEPTEMBER/OCTOBER 1980** – Los Pinos Western, Logging in Sn3, Sn3 Heisler Conversion, Sn3 Parts List, C&S & RGS Box Cars, Weathering Signs, Brass Doweling for Stronger Models, Buildings at Phillips, Backyard Locomotive, Humbrol Paints, German Military Light Railways of WWI, Matchbox Traction Engine Rebuild.

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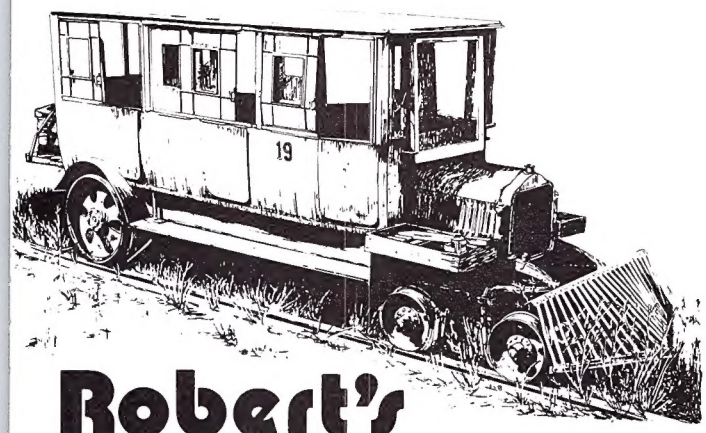
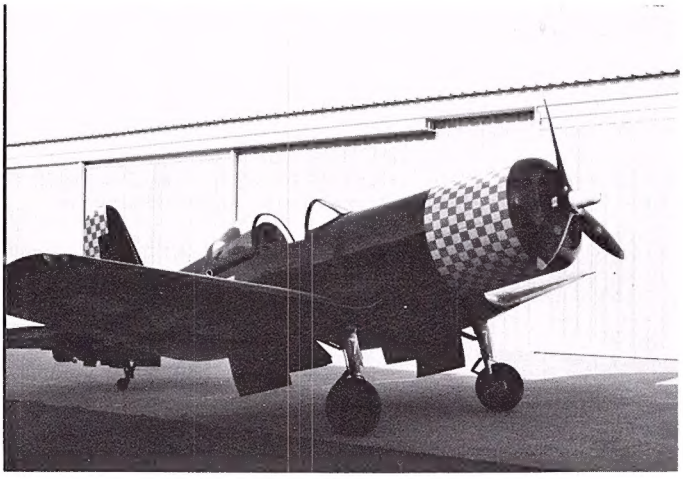
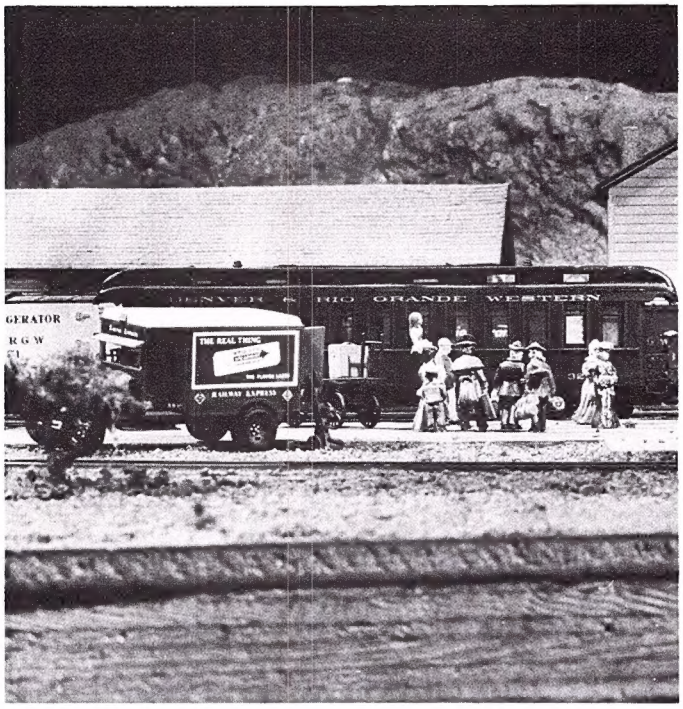


Robert's Ramblings....



Here is Bill Coffey's latest "model" It is a ½ size model of the famous navy second World War fighter, the Corsair.

Waiting for the train on the narrow gauge section of the Walnut Creek Model Railroad Society.



I have received many requests for reprints of both **FINELINES** and **THE SLIM GAUGE NEWS**. It is not financially feasible to sell reprints at this time but I am well aware that there is much valuable information in both of these magazines and that the early issues are commanding high prices. Some of the best material to appear in **FINELINES** was published in the very early days when the press runs were very small. Therefore I have decided to re-print several of the best articles from **FINELINES**. The first of these articles appears in this issue. It is more than a re-print because the material has been updated by the author, Bill Coffey.

Bill's article on Cerro Bend casting first appeared in the September 1966 issue of **FINELINES**. I chose Bill's article because it is the most often requested re-print and because the ability to make your own detail castings is so important to serious scratch-building. I know the techniques described by Bill work because I have used them. The old Mixmaster casting machine really works.

Some of you who were modeling back in the early and middle 1960's might wonder what happened to Bill Coffey. About 1970 Bill dropped out of model railroading but he did remain in model building. Bill has always had an interest in airplanes and was a military pilot for many years. Several years ago Bill decided to construct his own experimental airplane. He chose to build a ½ size Corsair. I have watched this bird take shape and it is a beautiful model. Remember it is ½ scale so it is still a model. The wing span is 20 feet so it is not small. Bill has recently completed his "model" and is now flying it. I have included a photo of his latest project just to show you it really exists.

For those of you who are not familiar with Bill's model building you can see some examples in the July/August 1978 **GAZETTE** where he described his little logging locomotive. He also won the coveted Craftsman Award for a car repair shop scene. Study his models well. They will serve as inspiration. I know they did for me. No other modelbuilder had more influence on my model building than Bill. I hope his work influences you also.

Linn Westcott passed away on September 8. Linn's contributions to our hobby are well known and his work as editor of the **MODEL RAILROADER** magazine is legendary. I knew Linn and I want to pay a brief but sincere tribute to him. He was always ready to take his time to talk about model railroading with me and I remember with pleasure the many chats we had on the early days of the hobby. Our condolences to the Westcott family. You will not be forgotten, Linn.

Bob Brown

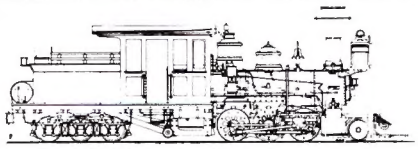
Announcements

Walnut Creek Model Railroad Society. Show on Jan. 25, 1981 from 11 a.m. to 6 p.m. Adults $1.00, children 50¢. The club is located at 2751 Buena Vista Ave., Walnut Creek 94597. Call 415/654-1363.

Errata

Articulated Steam Locomotives of North America was published by Sundance Publications, not Superior as mentioned in my review in the Sept/Oct issue. *Bob Brown.*

In the Sept/Oct issue I stated that the new E&B Valley passenger car kits were coming out with Grandt Line HOn3 trucks. This is an error. The E&B kits have Grandt Line wheels only. The trucks are by E&B.



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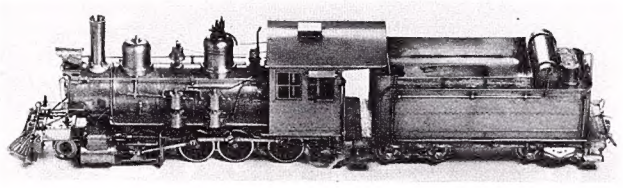

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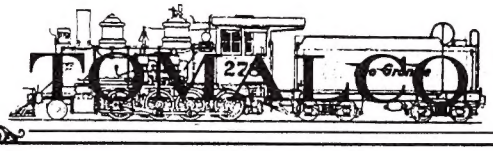

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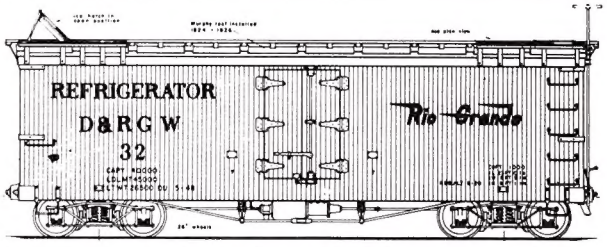

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The Pigeon Hole

Bob:

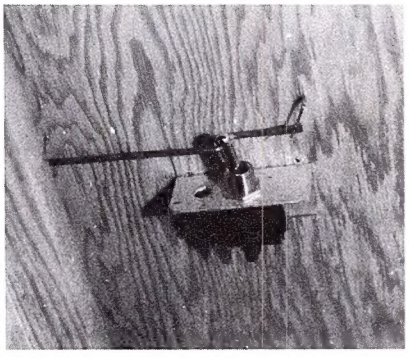
In reference to your articles on building switches and the John Robinson hand throw machine, seems you guys are always doing things the hard way.

The photo enclosed was taken at the Calif. Central club showing a DPDT switch with a hole drilled in the handle to take a piece of coat hanger wire. The wire is flattened at one end a small hole drilled in it for the .020 wire coming down through the plywood. All you need do next is connect the wires to the switch points and bend a loop at the other end of the coat hanger wire and you are in business.

I have used lengths of coat hanger wire up to 3 feet and they work quite well.

Anyway it is a much easier and quicker way that what John uses.

Eric Bracher



Dear Bob:

"Building Phillips" sent me to digging in my books again. P&R #4 ex B&B "ECHO" seemed strange. According to my books, the Billerica and Bedford never owned more than two locomotives. I'm looking at nice, clear pictures of the twins. The names under the cab windows are ARIEL and PUCK.

Did you use page 54 of "Two Feet Between the Rails – Vol. 1" as a reference? Jones said, "*SRRR's* number 2, the ECHO". Look at PUCK's fancy paint job on page 28. Vol. 2 has a Roster on page 350 that shows name changes from PUCK to ECHO to IZAAK WALTON TO BO-PEEP. See photo of IZAAK on page 118 of Vol. 1. SR&RL #17 was also P&R #2 at one time, but she was a Baldwin and much bigger than BO-PEEP.

Moody paired the name ISAAK WALTON with the 1893 Baldwin in his P&R Roster, but the picture on page 78-c of "Maine Two Footers" shows no name.

I'm nit-picking, but the **GAZETTE** is quoted far and wide. We narrow gauge nuts do not need any additional fictitious facts to add to our confusion.

Sincerely,

Bill Williams

Dear Bob,

Happily I have found a source of plans for tramp and coastwise steamers, small cargo boats, tugs, trawlers, whalers, etc., that may be of interest to your readers, although how applicable to the Northwest I cannot say. None other than our old friend in England, MAP ... that's Model & Allied Publishers, Plans Service, P.O. Box 35, Bridge St., Hemel Hempstead, Herts. HP1 1EE, England. Scales ¼ inch = 1 foot, some smaller, some larger. About three sheets to a set (1 boat), $3.00 to $7.00. Maybe 20 usable boats. Might also use a River Clyde steamer. There are also side/stern wheelers. One good US source is Music House Model Shop, 47 Kings Hwy. E., Haddonfield, NJ 08033.

Sincerely,

Jack Amerine

(Ed. Note: San Francisco Bay Area readers will find a complete selection of MAP books at Kent Snyder-Goodthings, 437 Cambridge Ave., South Palo Alto, CA 94303).

Dear Bob;

Just finished reading the article "Bungs, Firkins and Terneplate". I found this article most interesting and noted that it came as a result of a question asked.

Now I have another question that perhaps can be finalized into an article. The question is what is the history of corrugated material such as used for siding and roofing?

I have seen photos taken in the early 1900's showing buildings with corrugated material. Most people assume it is of a more recent invention but I can't recall seeing anything in print that gives a short history of when it was first used or who developed it.

Perhaps a reader knows the answer.

Eric Bracher

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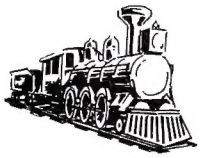

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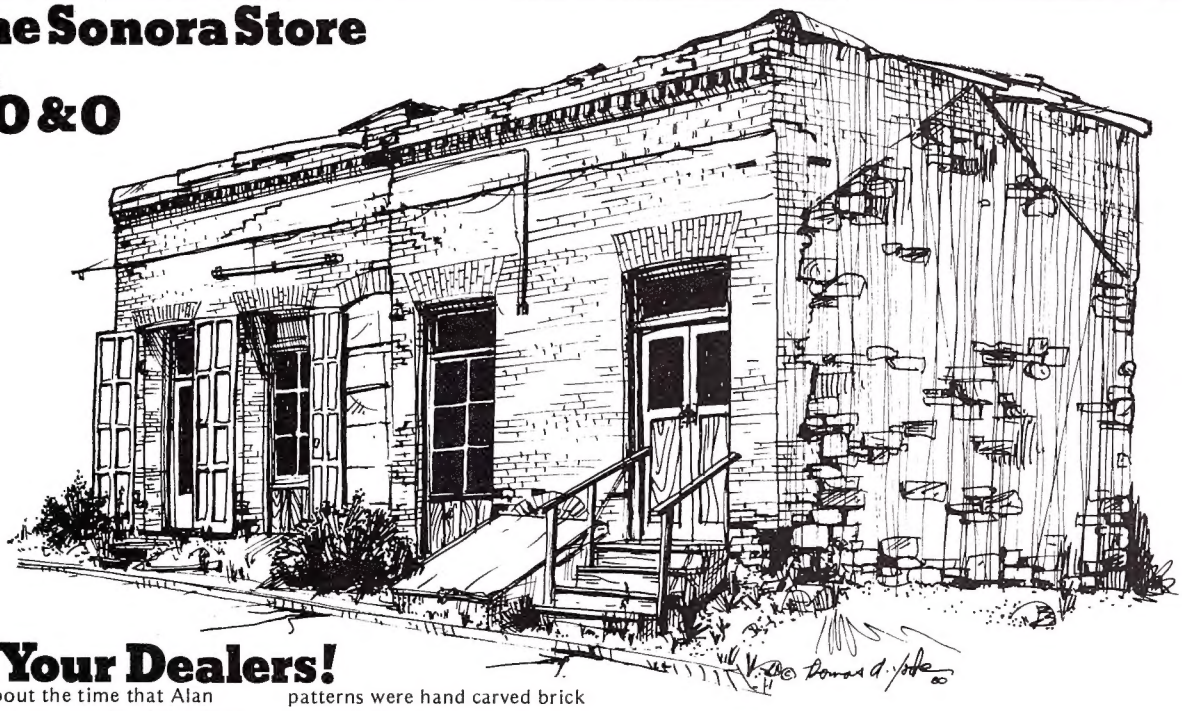

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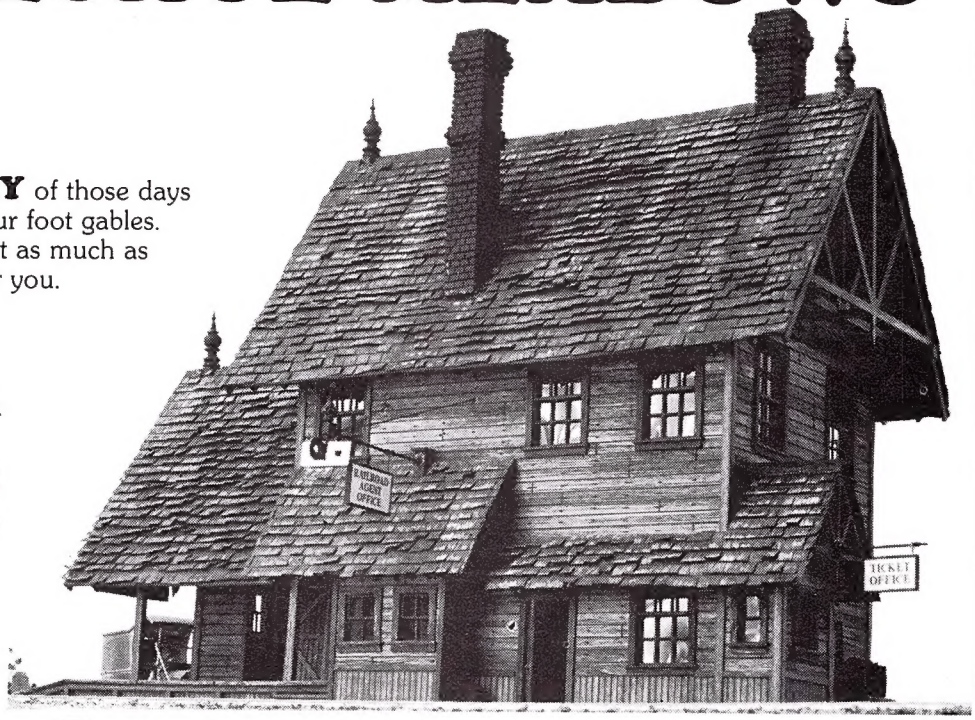

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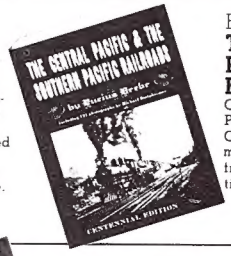

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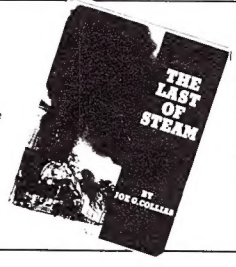

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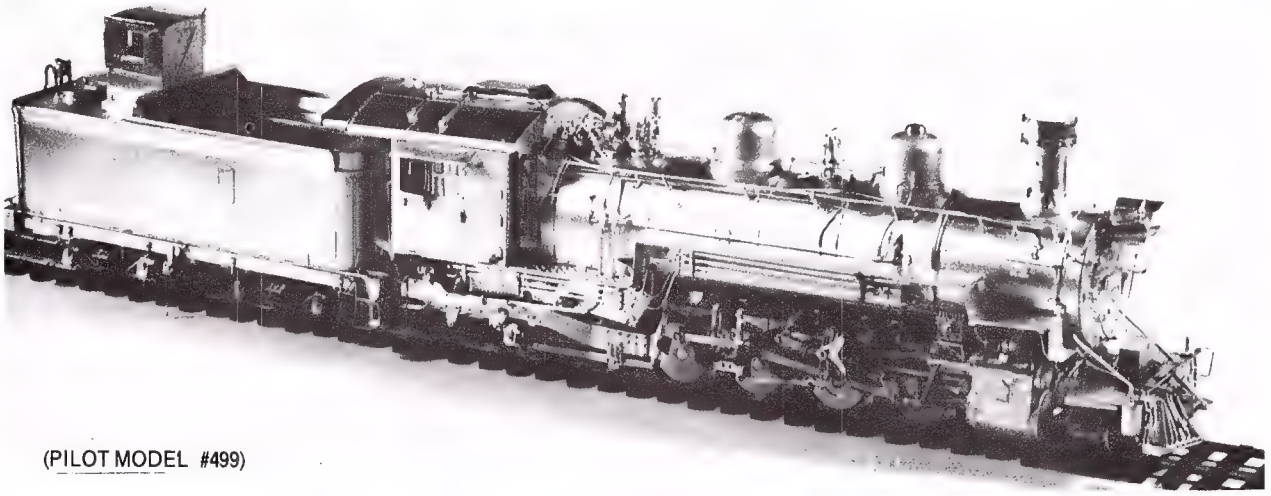

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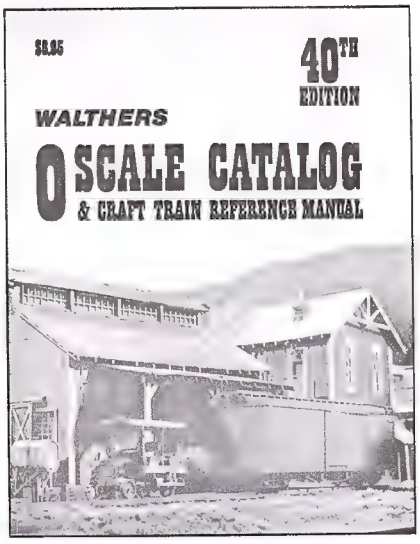

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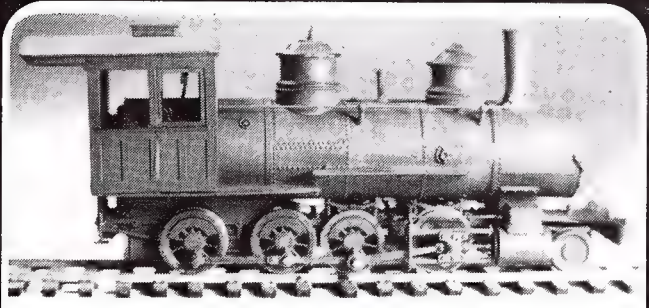

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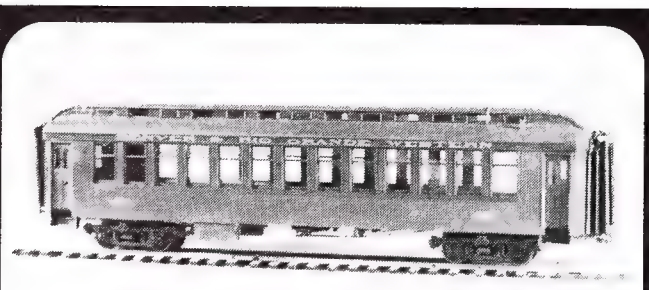

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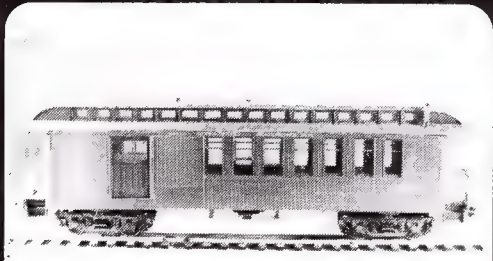

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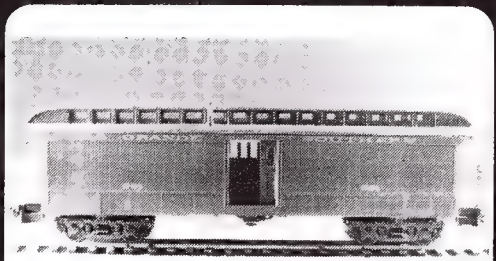

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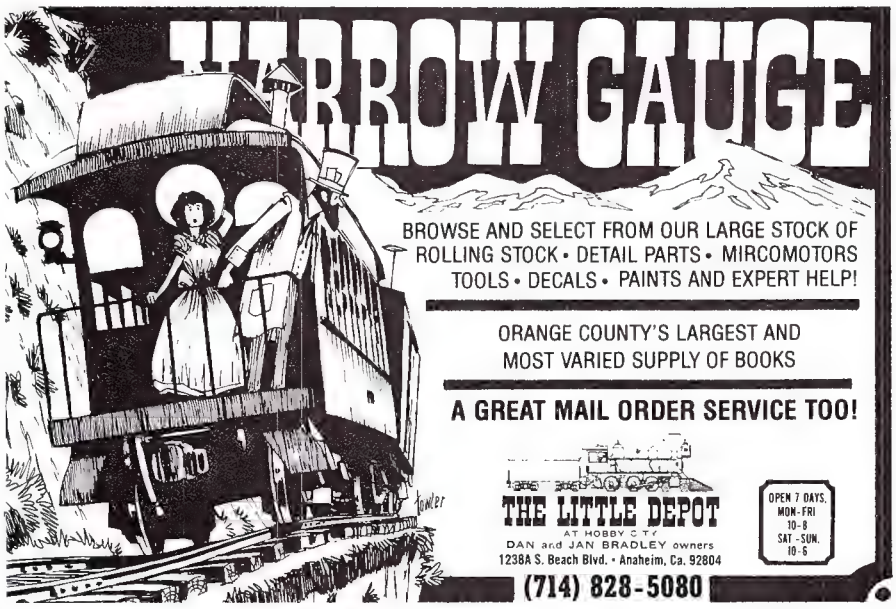
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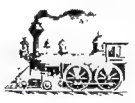

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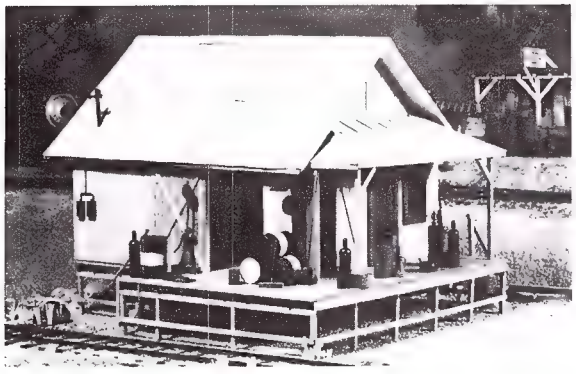

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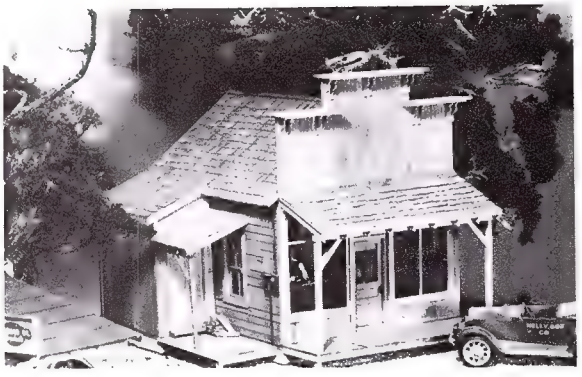

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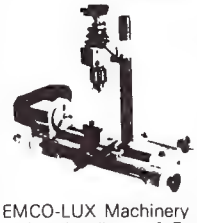

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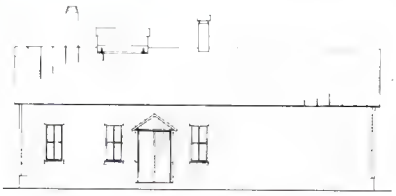

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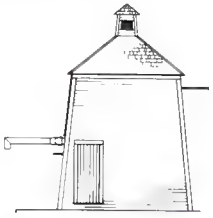

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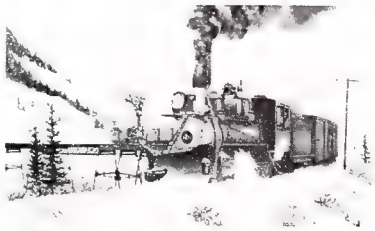
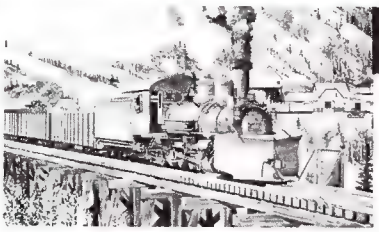
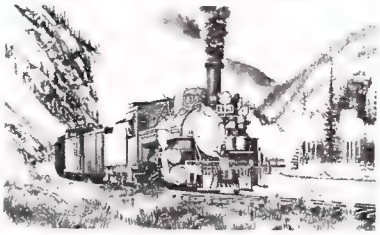

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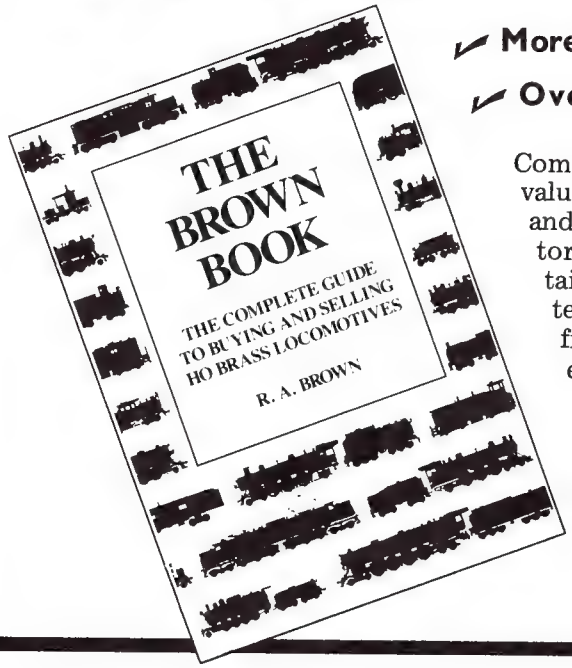

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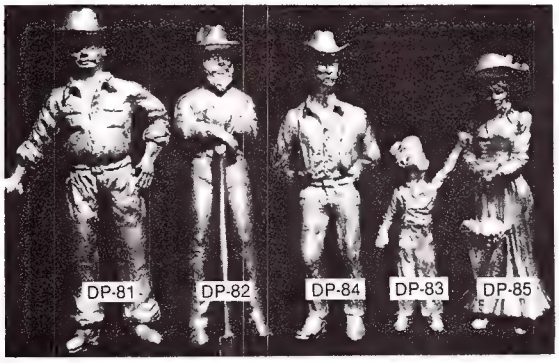

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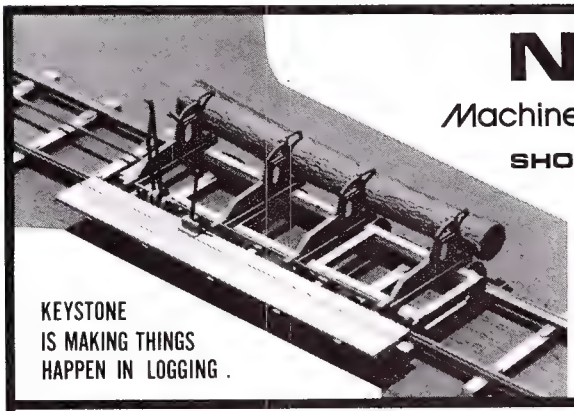

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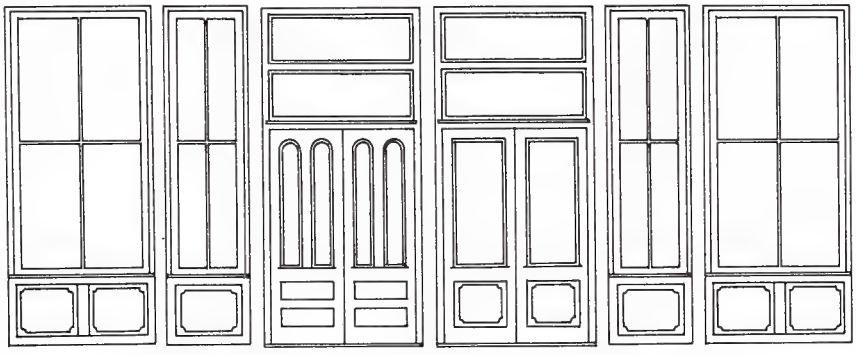

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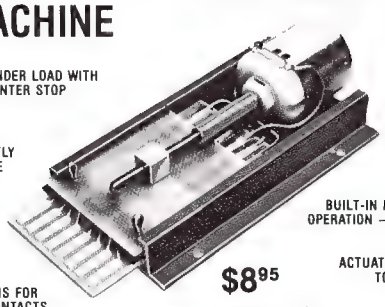

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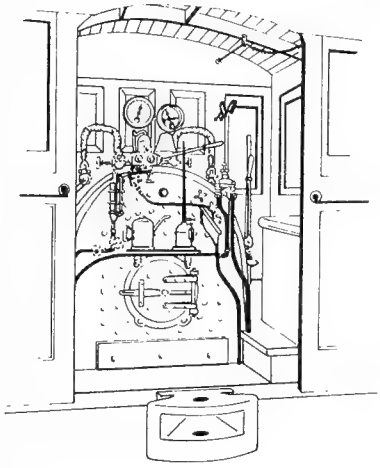

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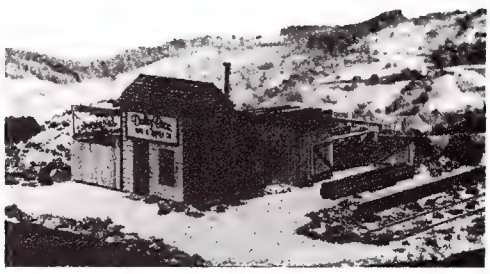

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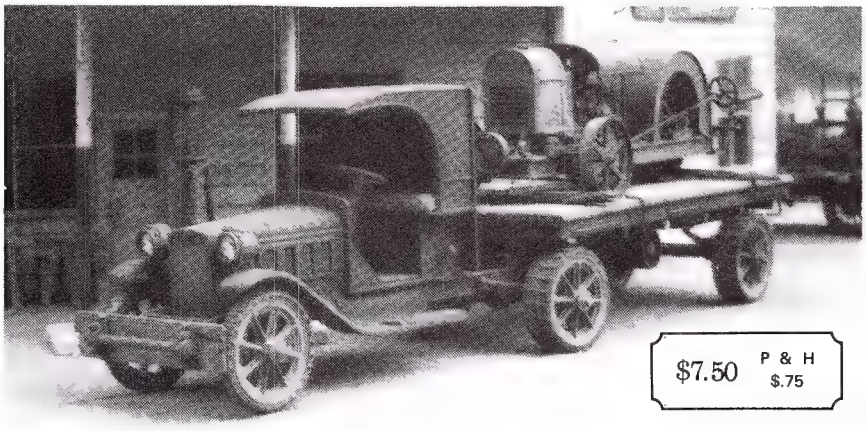

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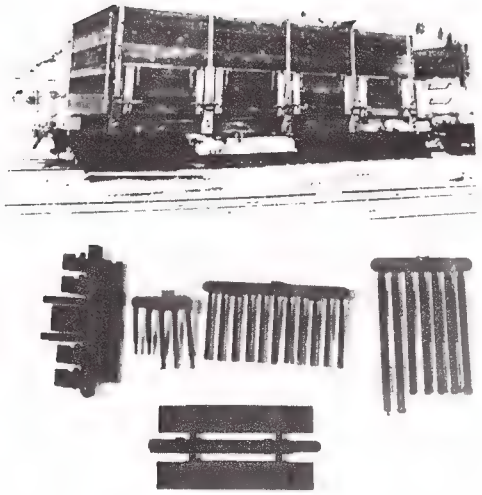
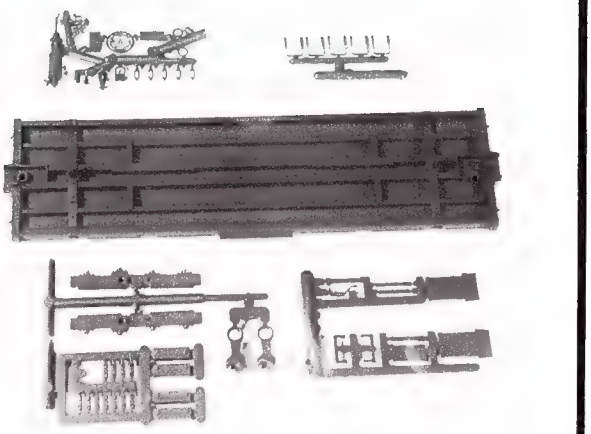
NEW in REVIEW

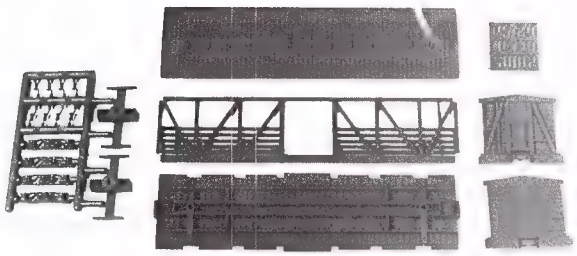
Russ Simpson, P.O. Box 256, Smith Flat, CA 95727 has several new On3 logging car kits available. One of these kits is for the West Side Lumber Company three-board, four door block car. These cars were used to carry mill ends of 2×4, 2×6, and other sizes into the woods for use a fuel on donkey engines and cook houses. The Simpson kit is a limited run item and is composed of precut pine parts plus injection moldings for the details. The door hardware, which is so tedious to make, is composed of good quality injection castings. The wood is very smooth and fits together well. Simpson provides detailed painting instructions and clear car-building data. A full set of drawings for the car is also included. The kit sells for $30.00 less trucks and couplers. This little-car is based on a classic Carter Brothers frame and will highlight any logging scene. Don't forget to park yours next to your cookhouse. *Bob Brown.*



V&T Shops, Box 5597, Reno, NV 89513 has a nifty little conversion kit available for Sn3-Sn3½. The kit will convert an HO gauge AHM Heisler into a Westside #2 Heisler. This conversion was described in detail in the Sept/Oct 1980 **GAZETTE**. The V&T instruction sheet uses the same drawings as those in the **GAZETTE** article. The kit sells for $32.00 and consists of a boiler casting, with the smoke box front, domes, and stack cast in place. Cab, frame, and running boards are separate castings. Both a long and short roof is provided. The tank and fuel bunker is a one piece casting. These parts are well detailed urethane castings and come painted black. The rest of the details, such as headlights, air pump, injectors, bell, generator and other parts are cast in white metal. If you are looking for a fascinating little locomotive which is well detailed and runs smoothly. Look into this conversion kit. *Bob Brown.*

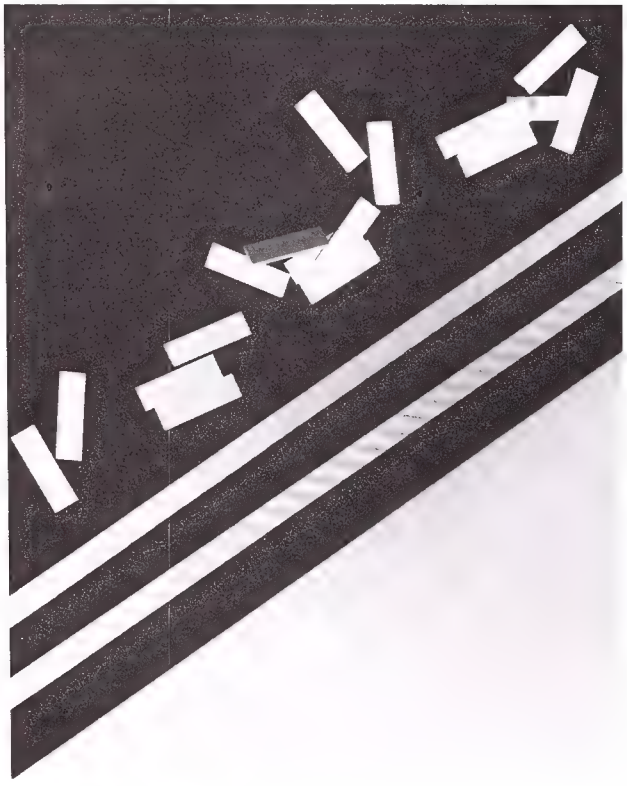


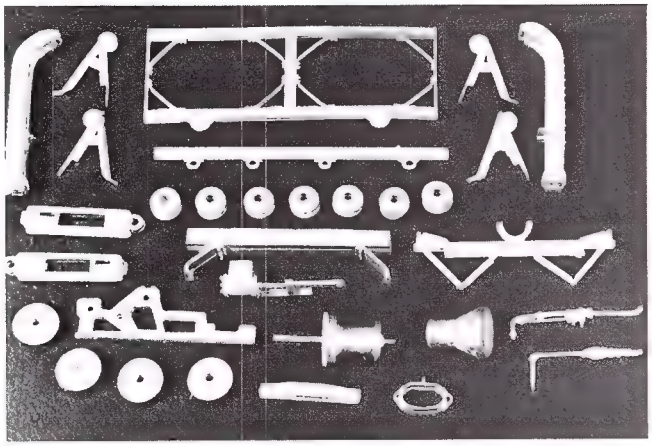
The Rail Line Co., 3600 Pittman Road, Independence, MO 64053 has a new HOn3 car kit available. They have taken the underframe of their forthcoming D&RGW stock-car kit and converted it into an idler flat car. The D&RGW did the same thing by cutting down stock cars and reinforcing them with lengths of railroad rail. As I understand it these cars were used in pipe trains between the cars loaded with pipes. Therefore they were called idler flats. The kit has a well detailed injection molded floor. You attach the needle beams, nylon truss rods, and brake details. Two lengths of rail are provided for reinforcing and wire is used for the shackles holding the rail in place. The underframe has a draft gear box cast in place. This is a very detailed model of one of the D&RGW 6700 series flat cars. It sells for $8.95 less trucks. *Bob Brown.*



The new HOn3 **E&B Valley** D&RGW stock car is now available. It was well worth waiting for. The kit is composed of styrene injection moldings. The parts were made by the Gould Company and are extremely well detailed. They are a major improvement over the die work on the E&B passenger car line. The kit sells for only $9.95 complete with trucks. You have to add couplers and lettering. The car has a draft gear box designed to accept Kadee Magne-Matic couplers. Each kit will make one of four versions of the prototype stock car. The underframe is cast in one piece but you have to add the needle beams and nylon truss rods. Holes are cast in the floor for the truss rods and little grooves are cast in the floor so the rods do not stick up and show on the inside of the car. The sides snap into the floor nicely. The outside top boards are added to the basic side castings to make one of the four versions of the car. The doors are separate and work. The ends are detailed, both on the inside and outside. The roof is pre-formed and has separate roof walks and platforms. The car is provided with cast hand grabs, brake cylinder, corner brackets, facia strips, door hangers, brake wheel, ratchet and pawl, door stops, and door hangers. I did not completely assemble my sample but I have no hesitation is recommending this little model as a good value. It should be very easy to have one of the stock trains so typical of the D&RGW. A sheep car with double floor will be available soon. See your dealer or write to E&B Valley, 18 Lorenz Drive, Valhalla, NY 10595. *Bob Brown.*

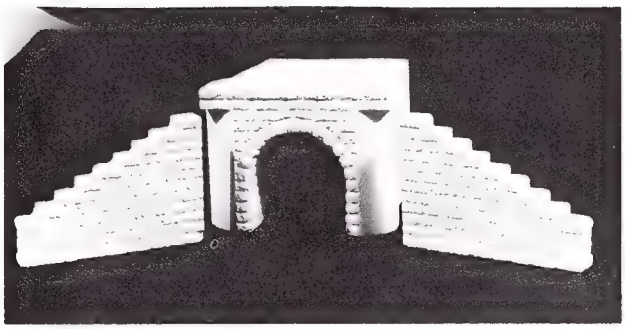
Those purveyors of styrene, **Evergreen Scale Models,** have moved. Their new address is 2685 151st Pl. N.E., Redmond, WA 98052. However, the move did not stop them from bringing out several new styrene items. They are now offering clear styrene in .010 and .015 thick sheets; .040 thick sheets of side walk material with four different size concrete squares; three different sizes of standing seam roofing material; metal siding with three different spacing of the grooves; 15 new strip styrene sizes including some very fine material only .010×.020 in size; HO, S, and O scale ladder kits; and HO, S, and O scale stairway kits which will really take the tedium out of making those difficult parts of a structure. Write to Evergreen Scale Models for their latest listing of styrene strips, sheets, and now, special details. *Bob Brown.*





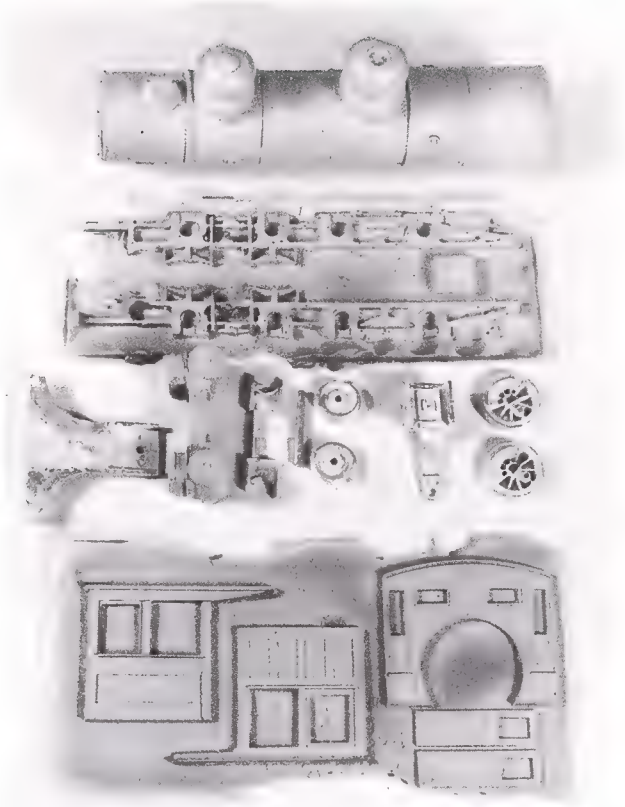
The new **Rio Grande Models** McGiffert Log Loader is a must purchase item for the HO-HOn3 logging fan. The kit is composed of a mass of well detailed white metal castings, Kappler wood, a plastic injection molded boiler, and corrugated sheet metal. The kit has a large instruction sheet showing exploded views of all of the components as well as several pages of instructions. The kit sells for $47.95 and can be built in either HO standard gauge or HOn3. The legs, cross members, and framing are all white metal castings. The winch and mechanism is also composed of white metal castings. The use of many small parts gives the model its detailed look. The boom is made out of dowel. The big wooden water tank is a large dowel. A detailed article appeared in the Sept/Oct 1979**GAZETTE** on the McGiffert loader. This is a fine kit and will even be of interest to non-HO modelers as a mantle-piece model. See one at your dealer or write to RGM at Box 463, Agnew Station, Santa Clara, CA 95054. *Bob Brown.*

The Kramer Model Works, Route 1, Lyman, NB 69352 has entered the market with a very nice little kit .Their first product builds into an HO scale stone culvert. The kit consists of six white, dental castings. The kit also contains a painting practice piece. Each culvert consists of a large tunnel casting with stone detail all the way through the tunnel. The face of the culvert is cast on this piece. Adjustable wing walls are also provided. The detail on these castings is excellent. These kits can be used in S and O scale as smaller culverts. Look into these kits if you need some fine stone work. Each kit sells for $9.95 (plus postage if ordering direct). *Bob Brown.*

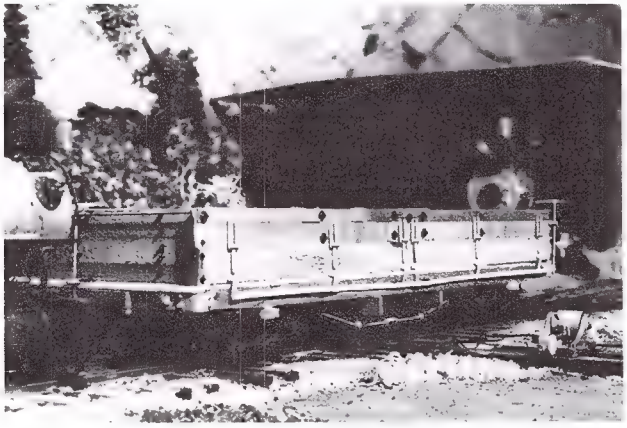


Walther's, 5601 W. Florist Ave., Milwaukee, WI 53218, is marketing a beautiful line of full color printed backdrops called "Instant Horizons". These are used in any scale. The main advantage of the Walther's backdrops is that they are large enough to cover a large area. The backdrops are two feet by three feet. Since there are 12 different scenes available you can cover 48 feet of backdrop. A plain blue sky with clouds is also available. The scenes are designed to connect one to the other. The color is good and full installation instructions are provided in each box. The scenes represent a Saguaro desert, desert to mountain transition, tall timber, Sierra boom town, mountain to desert transition, desert to country transition, hotel/business, freight yards, prairie/grain elevator, whistle stop, country to desert transition, and a dry wash desert. Each backdrop scene sells for $7.95. I know some of my set will find its way behind Phillips. *Bob Brown.*

The Whistle Stop Kit Co., 2828 Marconi Avenue, Sacramento, CA 95821 is selling a kit for assembling a derelict On3 C-16 locomotive. The finished model would be found rusting out in the weeds in a railroad yard. The kit is composed of urethane and white metal castings. It appears to be cast from Kemtron C-16 pieces. The boiler and domes are cast in one piece. The boiler lagging is gone so the rivets show on the boiler. The cab and frame are urethane castings as is the cylinder block. The wheels, rods, pilot deck, firebox, crossheads, crosshead guides, and cylinder heads are white metal. I have seen several of these models assembled and they are very effective. Full instructions are provided, and yes, the boiler casting is round, not oval. Even if you are not looking for a derelict locomotive the parts provided in this kit would provide a lot of clutter for your roundhouse areas. The kit sells for $54.95. *Bob Brown.*

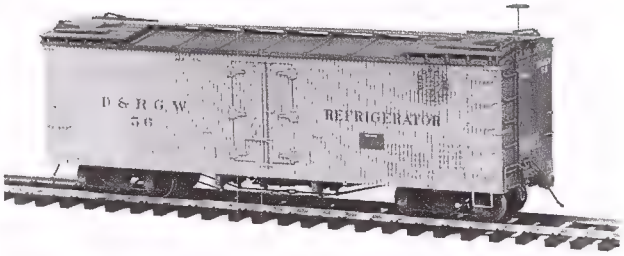


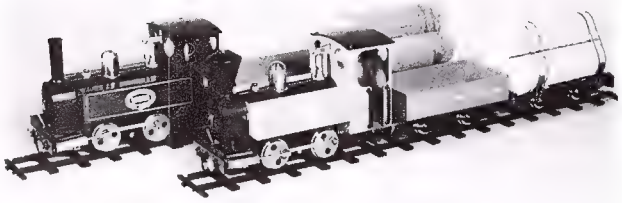
Around 1908 the Kennebec Central converted several flat cars into short side dump, lowside coal cars. The **Sandy River Car Shops**, 567 Rockdale Avenue, New Bedford, MA 02740 has issued a very limited run of 75 On2 kits for these cars. The cars feature special castings for the hinges and door levers by Andy Miller. The doors do not work but with some additional effort they could be made to open. The plan is by Clyde Estey. The kit is composed of precut wood with some pieces of styrene. There are several pages of instructions including two prototype photos. The detail parts are plastic injection moldings. The cars come less trucks and couplers and sell for $13.95. Don't miss this limited run kit. *Bob Brown.*



Precision Scale Co., 1120-A Gum Avenue, Woodland, CA 95695 has a very limited run of only 50 On3 D&RGW #60/122 available. These cars are all brass and come ready to run except for the trucks which have to be assembled. The cars feature wood-grained brass siding. The cars are cleanly assembled and all the parts are straight. The detail castings are by Precision and are all available separately. The trucks are very well done and have fully detailed metal wheels. The doors work and complete lettering sets are provided. These cars were used on the "San Juan" and "Shavano" trains. They were built in 1881 and rebuilt in 1937. The Precision car is, of course, the rebuilt version. Since only 50 of these cars were made don't delay if you want one. *Bob Brown.*

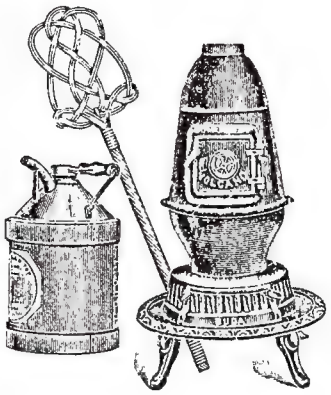
B&L Models, 816 Petem Road, Kingsville, MD 21087 has completed, track-tested, scratch-built On3 freight cars from the D&RGW, C&S and the RGS available. The cars are of wood, and are correctly weighted and detailed with Grandt Line parts. Some cars are in stock, whereas others will require a three to four month waiting period. The Grandt Line On3 drop bottom gondola is also available. Prices are $110.00 for a house car and $75.00 for a gondola. I have not seen one of these models but the photos look very good. *Bob Brown.*



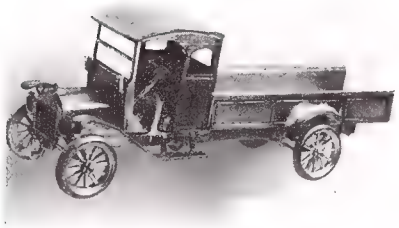


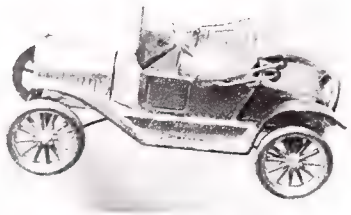
Mamod has manufactured steam toys for many years. They now have a live steam train set available built in 16mm scale which runs on ¼ inch gauge. This works out to two-foot gauge in ⅝ inch scale. The set consists of a ready to run locomotive, a four wheel gondola and log car, an oval of metal track about 6 feet by 7½ feet, a coupling hook, lubricating oil, and complete instructions. These products are built of metal and can provide the basis for building a large scale narrow gauge railroad. The thought of one of these trains running across your garden in the twilight is worth considering. The set sells for $340.00 and is available from the **Sidestreet Bannerworks,** Light Ry. Division, P.O. Box 17473, Denver, CO 80217. *Bob Brown.*

BITS & PIECES: What's New in Detail Parts by Bob Brown

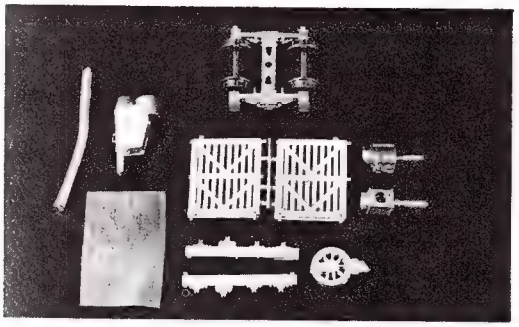


Signs are very important to making a scene seem alive. **Vintage Reproductions,** Box 7098, Colorado Springs, CO 80933 has a new set of Shop & Depot Signs available. The set is suitable for all scales and comes printed in white, yellow, and green. Each sheet is one color only but the sheets can be intermixed for different effects. The sheets sell for $2.50 each. These signs are sharp and clean looking dry transfers. They will go a long way towards creating that illusive effect called "realism". Write for VR's new catalog (50¢ refundable). *Bob Brown.*

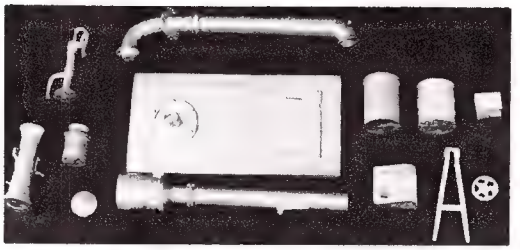




Tel's Novel T, M. Greenhalgh, 3623 S. Yampa Way, Aurora, CO 80013 has a new "series 2" N-scale etched brass model T kit available. For N scale and Nn3 modelers these cars are significant contributions. The kits have good detail with separately cast seats and wheels. The pickup is especially conducive to kit bashing. The kits form easily along the etched-in lines and the instructions are clear and complete. For best results, use a soldering tip filed to a pencil point and then flattened on opposite sides. Tel offers an instruction sheet for converting the "series 2" pickup to a classy runabout (Send SSAE). Another superdetailing sheet is also available which utilizes the extra wire and casting sprue provided in the kit. A jeweler's saw and Dremel tool are all but essential since the casting sprue is pretty hard. This model T can be a restored classic on the street, an accurate example of the vehicles of the period or a rusting heap in a field. These kits have fantastic modeling potential to add that "real" touch we all require. These kits sell for $5.95. *David Freehling.*



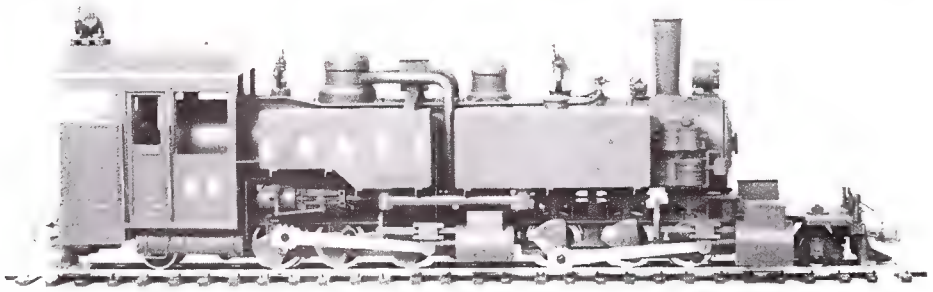
This photo shows a potpourri of new HO scale detail parts by **Precision Scale Co.** Most of these pieces are available in both plastic and brass. Shown are a set of cattle car doors, a pair of cast steel freight car trucks, a driver center, two new headlights, a set of needle beams, and a Beartrap smoke stack. Write for their complete list. PSC, 1120-A Gum Avenue, Woodland, CA 95695.

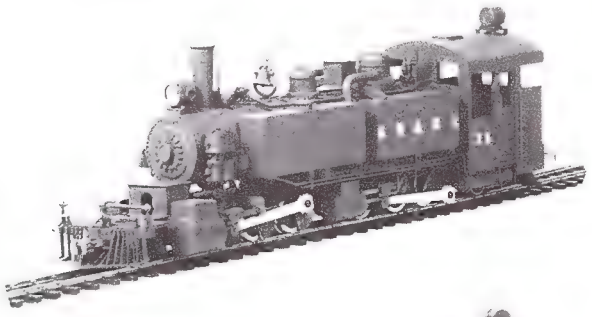


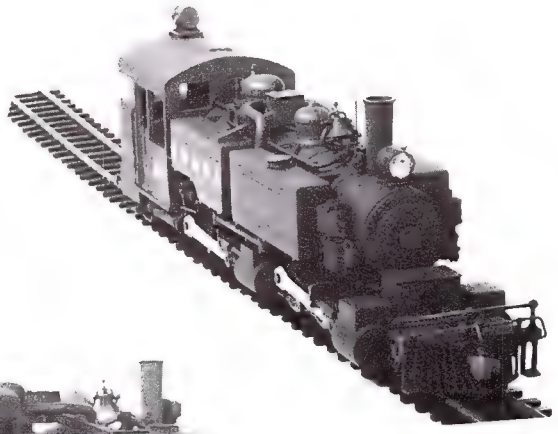
The Village Depot, 710 N. 19th Street, Cottage Grove, OR 97424 has several new S scale parts available. They are now marketing the Don Winter line of detail parts plus several of their own. Their price list includes twenty-six items. My samples include the Cumbres water column at $7.50, a nice little gas pump for $2.25, an old time wheelbarrow for $2.50, a garbage can, water pump, oil drums, and passenger assist step. These parts are all well detailed white metal castings. Write for their list. *Bob Brown.*

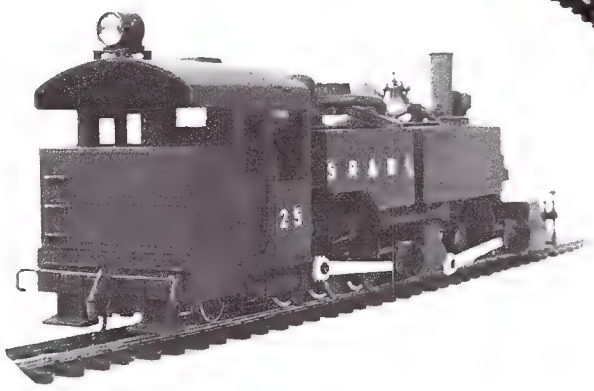
2-6-6-2T in Sn2

by David M. Cummins
High Honors Winner









This engine will run on a layout (not yet built) to be set in the late 1930's, only with a difference. On this layout, the depression has not touched the 2-footers, indeed business has slowly and steadily been increasing throughout the 1920's and 1930's. The Sandy River is prosperous and has kept up with technology; acquiring #25 in 1924, a small yard Diesel in 1934, and a Gas-Electric in 1937. The rolling stock is well kept and has been modernized a bit too, with some wood and steel composite hoppers, underframe box cars, etc. on the property.

The pride of the line is Baldwin built #25. She has been as good an engine in the Maine woods as her bigger sisters have been in the Northwest. With her outside frames she rides well, and her good weight distribution helps her outpull any two engines on the line.

The model is built along the lines of St. Paul and Tacoma Lumber Co. #10, and uses one #472 2-8-0 kit and one #1550 Static Saddletank kit.

Sn2 can use HOn3 running gear, because 36 inches in HO is equal to 26 inches in S. For those of us in this gauge, the availability of parts makes it easy to overlook the 2-inch error in track gauge.

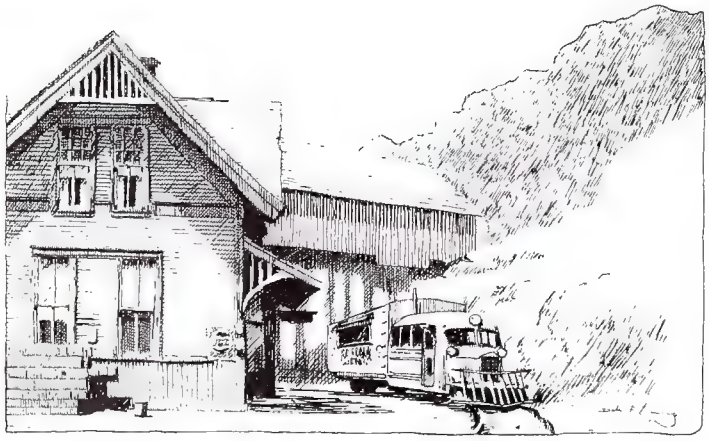
The front engine has had the rear driver section removed. The cylinders are sleeved with two layers of brass tubing, and the steam-chests are enlarged with styrene. A Precison Scale lead truck was used. An O gauge truck spring is used to spring the lead truck, and also to balance the frame, which is front heavy otherwise. The front coupler is out of the junk box, but filed out to receive and mate with Kadee HOn3 couplers. The front engine is not powered, although this would not be too hard to do. I just don't need that much pull on my layout.

The rear engine had the front end modified; the front driver was removed, the pilot was removed, and the cylinder unit was moved rearward. A new yoke was made. The motor-gear-driver relationship remains unchanged, except the middle driver was flanged. The rear truck is the pilot truck from the 2-8-0 kit. The rear engine is extended to the rear end beam with a heavy brass insert.

Front and rear engines are coupled with a simple link-in-slot arrangement. The boiler and cab are together as a unit. The Saddletank smokebox with stack was glued to the front of the 2-8-0 boiler. The cab was separated from the saddletank, made taller, and a new front wall was fabricated. The oil tank has a brass weight. Cab windows were cut out to S gauge sizes. The 2-8-0 boiler was stripped except for the steam and sand domes.

The water tanks are made from an Athearn HO box car (for rivets), brass centers and styrene.

The Narrow Gauge SCENE



by Charlie Getz

Lo the mighty billboard, symbol of urban blight! Nevertheless, the billboard is an important part of both the rural and urban scene. I'm not sure when the first billboards appeared, but they were a well-developed advertising medium by the 1920's, and continue relatively unchanged to this day. Whether you love 'em or hate 'em, you'll have to agree that it's pretty difficult to find a stretch of countryside in the U.S. that doesn't have at least a few billboards. Thus, I am surprised to see so few of these ubiquitous and easily modeled details on layouts.

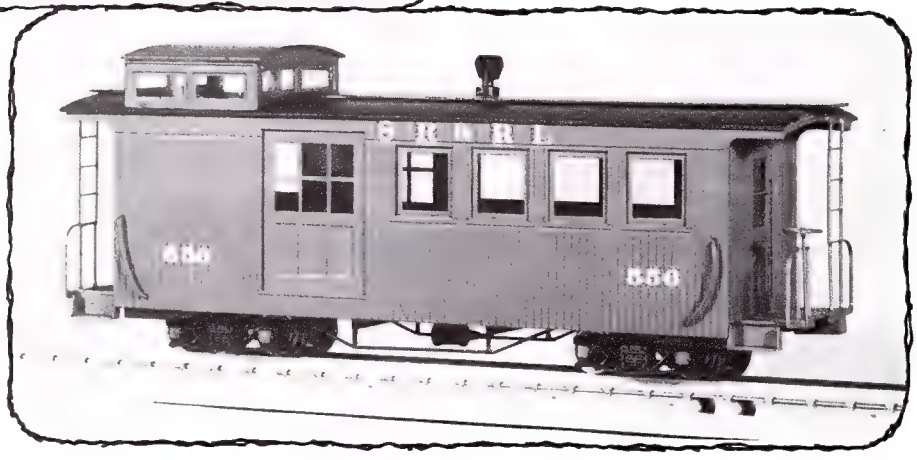
Pictured here are just a few of the billboards commercially available in HO, lettered for a local political compaign in which I am involved. Three are unmodified Woodland Scenics kits, representing a modern prototype, one is a modified Woodland Scenics, and the fancy gingerbready version is by S.S. Limited, now a division of Walthers. Chooch also makes a billboard in both HO and O. Plastic ones are available from Life-Like and other manufacturers. Billboards are fairly easy to scratch-build, and a number of billboard articles have appeared in past issues of the **MODEL RAILROADER** and **RAILROAD MODEL CRAFTSMAN**. A simple job such as assembling a billboard from a kit can be a welcome relief from more complex projects; the result is sure to enhance any scene. Remember that billboards are often installed on the sides of buildings and on roofs.

Bob Sloan's article on Conoco tankcars in this issue may inspire some of you to model these interesting pieces of rolling stock. Luckily, Conoco tank kits are or have been available in the three major scales. Classic Miniatures, now marketed by The Original Whistle Stop, Inc., offers Conoco #5 in HOn3 (and once offered it in On3). Tomalco ran a limited run of beautiful photo-engraved brass #5 tanks some years back also in HOn3. In Sn3, Cascade Miniatures offered a kit for Conoco numbers 10 and 11 in brass. I'm sure I've left some out. Hopefully, the manufacturers will offer more Conoco tankcars to add a little variety to your checklist.

Lots of news for the holiday season. Some of the biggest news concerns one of the smallest scales, HOn2½. A good friend, and **GAZETTE** reader Shozo Inoue visited us recently from Japan with his lovely wife Harumi. Shozo brought the news that Sango and Joe Works plan an extensive line of Sandy River equipment for the HOn2½ market. Besides the caboose, pictured and advertised, a Sandy River style Forney will be offered by Joe Works, and Sandy River #18, a big 2-6-2, as well as a full line of Sandy River passenger cars will also be produced early next year. These will be offered I believe in kit form, and this must be exciting news for any HOn2½ fan. We hope to have reviews of this equipment as it is available. I have enclosed a picture of caboose #556 provided by Shozo-San. Shozo-San also reports that HOn2½ is very popular in Japan; these products should help make it popular here in this country.

By the way, Shozo-San advises me that the mysterious line in their recent advertisement for an HOn2½ Shay, "striking secret in drivings" really means that the gear box and motor are enclosed, and the drive train is hidden! OK, moving right along . . .

Russ Simpson, P.O. Box 256, Smith Flat, CA 95727 is once again actively producting a very complete line of products in HOn3 and On3. Now at your dealer are a series of cars in On3 from the West Side Lumber Company including a block car, Carter built flat, sand and gravel car, and work gon #15. Coming up in the same scale are RGS long caboose 0404, a real charmer. Simpson is also branching



into the expanded foam arena as well as track components. New On3 turnouts with plastic ties are being designed now, and over the next few months, look for new West Side cars such as a box, short cabooses #3-4, 38-foot skeleton, and Carter standard disconnect log trucks.

Speaking of On3 rolling stock, Don Winter plans an impressive array of On3 D&RGW equipment such as flanger OC, air dump OS, spreader OV and a dual gauge idler car. Sounds good – another winner for Winter.

Looks like a war of the plastics in HOn3. There are three manufacturers actively planning styrene freight cars in HOn3. The new E&B stockcar, illustrated in New in Review, is very nice, and the die work is the best yet from E&B. I'm in the process of assembling one now, and so far everything fits beautifully. E&B is working on a double-deck sheep car version, as well as a high side gon.

Also working on a high side gon in HOn3 is Railcraft. As you may remember, Railcraft originally offered the gon in epoxy but the slow manufacturing process necessitated by epoxy has caused them to re-tool for injection-molded plastic. These are expected by the first of December and the price as not yet been set. Following this will be some plastic 30 and 40 foot reefers. Railcraft also reports that due to problems in obtaining rail, their track has been difficult to obtain, but new rail is expected soon. They still have code 40 HOn3 track, and code 83 HO track available. Code 70, 55, and 83 are expected to arrive in that order.

The third manufacturer to produce styrene cars, Railline, is still working on their stock car which should be released soon. They recently sent samples of an idler flat which should be available now, utilizing parts from the stock car. Idler flats were created by the Rio Grande in the 1940's and 50's to handle the pipe-train traffic to the Farmington, New Mexico oil fields. Railline's version represents a stock car which has been cut down and strengthened with rails bolted to the sides of the frame. See New in Review for a photo.

All of these plastic cars should be a welcome addition to any roster, and will allow modelers to quickly assemble the strings of freight equipment so typical of Narrow Gauge freights. Still, you can't beat wood for weathering, so don't forget Tomalco and the other fine manufacturers of wood kits.

A recent visit to Kemtron showed them to be in full gear. The old Thomas Flyer railcar will be re-released very soon, and it will be a limited run item due to the limited stock on hand.

Recently I inspected the new Sequoia Sand House and Tower based on a Jack work design appearing in a 1958 issue of **MODEL RAILROADER**. This is really a super kit with great instructions, and an especially nice exploded diagram. The quality parts including Kappler wood and Grandt line castings come bagged and lettered by sub-assembly, to ease construction.

Vintage Reproductions, Box 7098, Colorado Springs, Colorado, 80933 has released a whole new series of "billboard varnish", transfers designed for passenger equipment. Decals for RGS, Colorado Midland, the (modern) Silverton train, as well as Buffalo Bill's Wild West Show, and Gentry's Dog and Pony Show are offered in a variety of scales. I'd suggest you contact Vintage Reproductions for their up-to-date catalog, which illustrates these as well as the whole line of products from Vintage. These dry transfers are really super, and new ones come out all the time. I just examined their new depot and shop decals which contain a multitude of helpful signs appropriate around the yards. *See Bits and Pieces.*

Durango Press is planning a series of little detail items to spruce up your scene. The winch from their On3 derrick will be offered as a separate item, DP-89 at $15.95, and will come with skids. (Please note there is no boiler.) Also new are figures in O scale either in sets of 5 for $13.95, or individually for $2.95. These figures will include a workman with an axe and shovel, a little boy, a woman, and an older man (no, not our Editor). Also new in O scale will be a pot-belly (no, not me) stove, ceiling fan, and an acetylene torch set. Look also for HO-O coal buckets. Of course the big news from Durango Press is the Marion Shovel, in very limited numbers coming January 1.

Durango Press reports that their water and tank car series has been delayed, as has the HOn3 rotary. Also delayed is the interior of the On3 rotary. From Wheel Works, look for an HO Fordson Tractor. Remember, it's the little things that count.

Speaking of little things, often products made overseas can add immeasurably to any scene. Pirate Models of England, for example, offers several 7mm scale model T's and a 4mm HO scale series of buses (boo-hiss),either of which can enhance your roadways. Although many of the buses are British prototype, there are some American types. I suggest dropping a line with an international reply coupon to Pirate Models Limited, 430 Hoe Street, London, E179AA for information and prices.

Magnuson's new HO vintage white metal vehicles ($5.95 each) are shown against the back drop of their new styrene buildings. They are very easily assembled well detailed structures. Also new from Magnuson are a series of 1/25th scale figures ($7.95 each) for the new MPC General. As you can see from the photo,

THE CROSSING GATE

PRESENTS:

The SAN JUAN in On3

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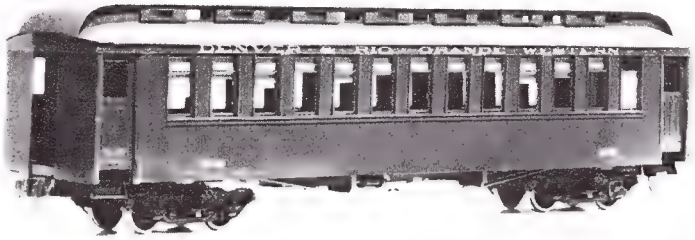
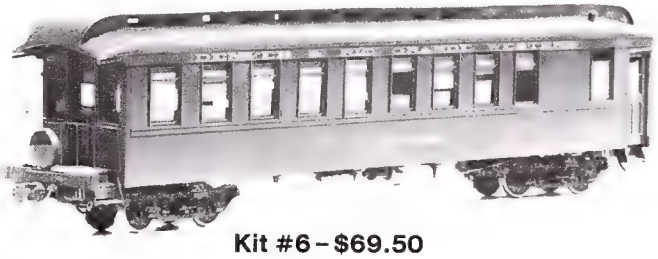
Kit #4 – $59.50



Kit #5 – $66.50



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these look really super, and the General with these figures will make a nice mantle piece model. O scale figures to follow.

Whistle Stop, 2508 Miles Avenue, Billings, Montana, 59102, recently sent us samples of their **GAZETTE** binders, and I am most impressed. It's a good way to preserve your collection of the **GAZETTE**, although there is one minor hitch. While the binders are fine for early volumes of the magazine, I'm happy to report that it has grown so fat that recent volumes just will not fit. The first three volumes will fit fine, but volumes four and five are a tad thick. I'd suggest placing four of them in each binder. Thus, you will need six binders to house your complete collection, an easy and affordable way to provide complete protection.

Kalmbach has just published a new book on Modular modeling, or doing scenes rather than an entire layout. Covering both railways and military modeling, this should be an exciting work.

In the news, PBL recently sponsored a "rider freight" on the C&TS Rwy., which was limited to only 50 lucky participants.

On a recent trip I spent an enjoyable afternoon in Bodie, California, a well preserved ghost town which has become a state park. Within the park is one of the finest mine complexes I've come across, as the photo shows. The photo could have been taken in 1880, but I assure you it was taken in 1980. I have a number of other photos showing the same complex. If you're interested, drop Bob a note, and perhaps we can run more pictures of this

well preserved mine. Might even be able to track down some information from State Parks.

I continue to welcome your letters and suggestions. Wishing all of you the best of the holiday season. May your rails run true and narrow. Until next time.

Charlie

FORKS CREEK STATION, Forks Creek, Colorado.

This little station was featured last January in a Gazette article by Harry Brunk, built from commercially available castings. Our structure is designed around specially cast, correctly scaled styrene windows and doors done just for this building by Simpson.

We've gone all out for realism and detail with individually planked deck, individual 1x4 battens over die-cut, Kappler siding, 3-color decals, and many custom castings by Gordon Cannon and Dale Darney.

While our pilot model shown here wasn't quite finished by press time, our brochure with photos of the completed model will be ready by the time you read this.

This is a spectacularly detailed, very complete kit. There are 400 in HO and 250 in O scale, most already pre-sold to our distributors.

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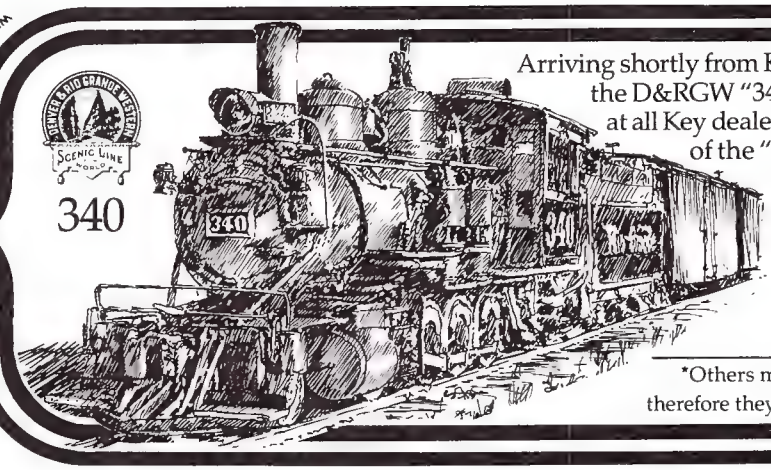
Mill Valley, CA 94941



Arriving shortly from Key Imports Limited, the D&RGW "340" will be on display at all Key dealers. This HOn3 model of the "Rio Grande" 340 will be of a very limited nature and solely for those collectors of the famed "Rio Grande" narrow gauge.

*Others may want to own the "340" therefore they must reserve theirs now!

Cerro-Bend Casting

by Bill Coffey

Introduction

There are two reasons for making castings in your own shop. First, when you need a part in large numbers and it's not available commercially, casting your own is the only alternative to making it one by one. And, second, there is the pride and pleasure to be obtained from doing your own castings. Sometimes modelers assume that they can learn the technique of casting, buy one commercial part, and thereafter produce as many as they want. This is neither feasible or practical, and it's certainly not ethical. Commercial parts are made in high volume and are therefore relatively cheap, much cheaper than you could achieve in your home workshop considering the time and materials required. I heartily discourage copying commercial parts. Save your casting efforts for parts which are not available commercially, castings from castings will not be accurate. Or make your own patterns. When a number of like parts are required, it is much simpler and more accurate to spend your time making a master pattern of your own than to get involved in the questionable procedure of attempting to copy someone else's casting. Casting your own is most rewarding when you need parts that can't be obtained any other way. If there is a group of modelers in your area that can use the same parts you can share the expense and work and bring down the cost per part.

Preparing the Master Plan

The first and most important step in the entire casting process is the fabrication of a master pattern suitable for casting. The master pattern should be a "master" in all respects. Consider from the start what kind of casting process it will be used in. Is the master to be used in a vulcanized rubber mold for the manufacture of wax parts for investment casting? Eventually these masters will be duplicated as brass parts from the lost wax investment process. Is the master to be used with silicon rubber molds? These masters will be duplicated in a lower melting point metal alloy. Is the master to be used as an open faced mold pattern for water putty parts? Once the use planned for the master has been decided, you can select its material.

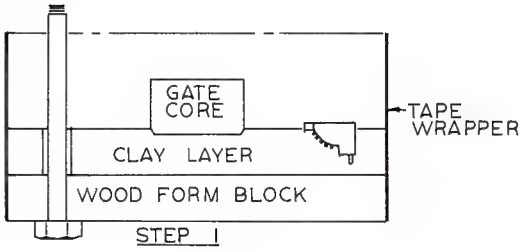
Soldered brass masters are required for vulcanized rubber molds since the vulcanizing temperature is high enough to damage masters made from less heat resistant materials. This does not mean that soldered brass masters could not be used in silicon rubber molds, but it would mean more work than necessary since brass is hard to fabricate for the average modeler. Metal (soldered or epoxied), plastic, plaster or even wood is suitable for patterns molded in silicon rubber since it cures at room temperature. Silicon rubber is the most applicable for home shop use, and I will discuss its use in detail. When your mold material is silicon rubber I highly recommend styrene for master patterns since it is relatively cheap, easily fabricated, and readily available. It is also easy to add details in sequence without the worrying about items which have already been attached becoming unsoldered. A great deal of information on handling styrene can be obtained by studying the articles written for the **MODEL RAILROADER** (Sept. and Nov. 1959) magazine on styrene fabrication by Alan B. Armitage. A series of loose leaf sheets published by Kemtron and written by Armitage are available. Therefore I will not review the entire fabrication technique in this article. Do note that some practice is required before you master the technique. Lay out the part that you want to make and fabricate it as accurately as possible. For Cerro-Bend parts, make the pattern the exact size that you desire the cast parts to be. No shrinkage has to be taken into account as is required in lost wax casting. Rember that the casting will be no better than the pattern, so take your time and do it right. If you have to redo your pattern several times at the beginning, do not feel bad, it happens to a professional that I know. During pattern fabrication several things must be taken into consideration. The rubber will re-produce any mark or surface irregularity so if your part is to be smooth, make it smooth. All cracks or joints should be filled as the rubber will penetrate even the smallest crack and may form an internal key which will prevent the separation of the master pattern from the mold, with possible mold tearing. Thought must be given to the parting plane . . . where the logical place for mold separation both from the point of practicability of removal and for appearance, since a separation plane mark and also a certain amount of flash may be evident. Depending on the type of mold and casting techniques used, a number of patterns may be required prior to mold making. Before you do any molding go back over each pattern. Check all joints to be sure that they are firm and filled. Check al critical surfaces with a magnifying glass for unwanted surface defects. Then and only then are you ready to prepare the mold.

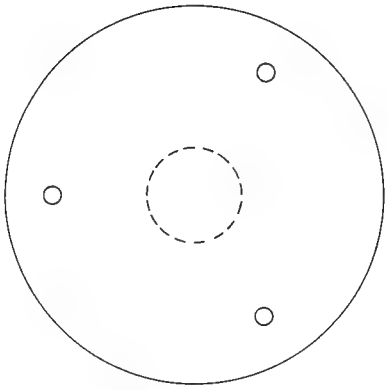
Casting Methods

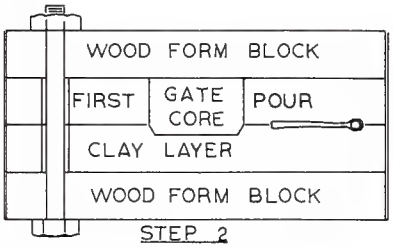
Casting can be done by several methods, I will discuss three methods but will give most detail on one. Each of these three methods requires a different type of mold, therefore, the casting technique must be determined prior to mold making. Probably the simplest and least effective of the three is open-faced casting which can, but seldom does, give satisfactory parts. In this method, a single mold is made with the top open for pouring the metal directly into the cavity. You cannot be assured of a complete fill and one side has no detail. It does, however, utilize the least amount of rubber and is the simplest to make. Some very simple parts can be cast by this method. Water putty castings are made in molds of this type and are quite good.

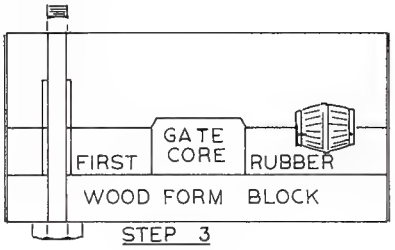
The second method utilizes a two-half mold and a static head pressure to assure complete filling. The two-half rubber mold has either an integral or external reservoir of sufficient height to permit the weight of the metal to force itself into small detail areas. While this system can give very satisfactory parts, some disadvantages must be taken into consideration. A relatively large amount of metal must be melted, poured and allowed to cool to obtain the part each time. This is time consuming and will eventually deteriorate the scrap metal as it is returned to the melt pot. A variation of this method uses a heated vertical feed tube which is capable of being shut off at the mold contact point. The tube is attached to the melt pot and thus a continual supply of melted metal is available. This accomplishes two things – (one) very little metal other than that actually required for the part is chilled, (and two) a tube of several feet can give a head sufficient to fill the most complex mold. In practice, the two-half mold with its sprue opening is placed in contact with the tube outlet. The valve or stopcock is opened and metal flows into the mold. After a static condition is achieved, the stopcock is closed and the mold is set aside to cool There are two disadvantages to this method. Unless an extremely long tube is used, insufficient head will be developed and loss of detail will occur. Also the system must be cleaned out after a casting session in order to prevent breakage of the glass system. Why use glass? Well, Cerro-Bend is a funny metal and is contaminated by all other metals. Therefore, a glass or stainless steel melt pot and system is required. This applies to any casting or melting method. Why will the glass break on cooling? Here again, it's that funny metal; it expands slightly on

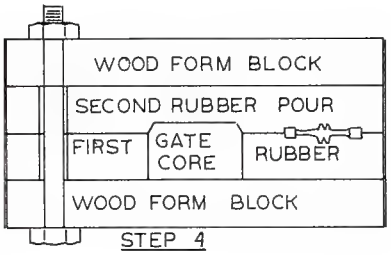
MOLD MAKING



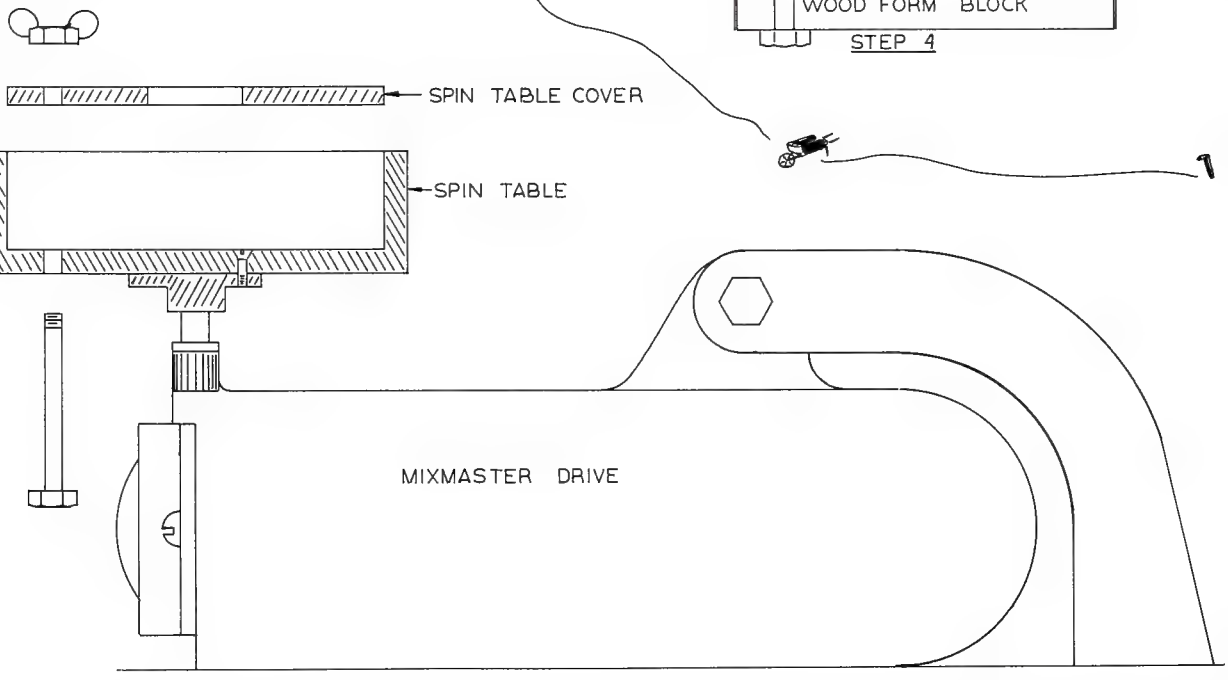








CASTING MACHINE



This is a photo of my first mold. About fifteen years ago I decided to build a model of an axe factory which was located in Oakland, Maine. I needed a line of old fashioned steam driven drop hammers and decided to cast the parts. Bill taught me the molding and casting process. The open mold is in the center of the photo. The right hand half has brass and styrene patterns in their cavities. The left hand half shows the cavities and spacers used to keep the mold halves in line. Some of the drop hammer castings are arranged below the mold and a completed drop hammer flanks each side of the photo. The axe factory is still incomplete. *Bob Brown.*

cooling, unlike other more normal metals which shrink. This expansion, however, has the advantage of assisting in filling small detail.

The third method utilizes centrifugal force to induce a relatively small amount of metal into the mold cavity under pressure thus achieving the same type of pressure casting as does the static head method, only better. In this system, a two-piece round mold is used and the metal is ladled in from a glass or stainless steel melt pot. The advantages of this system are, that only a small amount of metal is actually induced, and that head pressures can be varied by varying the motor speeds. Thus you can fill more complex cavities with a more dense metal by increasing the speed. There are two disadvantages. Time is involved in attaching and removing the tie-down fixtures which are required to prevent the two halves of the mold from spreading under the pressure of the metal. Also, considerably more rubber is required for the molds than in either of the other two methods. This is the method that I have settled on and the one I will cover in detail in this article.

The First Half of The Mold

Now to the making of a two-piece round centrifugal mold. First determine the diameter of the spin table (see the diagram and discussion on the casting machine) and this determines the diameter of the mold. Two pieces of one-half inch plywood are sawed and sanded around a center hole to a perfect circle of the proper diameter. With the two pieces bolted together through the center hole, three 3/16 inch holes are drilled through both pieces approximately ¾ inch from the edge and on 120 degree centers. Mark the pieces of plywood, "top" and "bottom" and index mark both the plywood and the spin table so that all parts are related. These holes are for the mold hold-down bolts and also provide spacer support while pouring the molds. Now, take that bottom piece of plywood and run bolts of the correct size and sufficient length from the bottom up. Place metal spacers over the bolts equal to one-half of the mold thickness. Invert, using bolts to provide the proper spacer alignment. Using gummed paper-tape, wrap the plywood with several layers with the lower edge of the tape even against the flat surface upon which the spacers rest. When the tape is dry, restore to the upright position and place several ordinary staples through the tape and into the plywood. You now have a housing of proper height in which clay can be formed.

While clay can be pressed into the resultant "can", it is easier to melt the clay (hobby shop plasticine) and pour it into the "can". The "can" should be filled with clay so that the upper surface is even with the tape and spacers. Set this aside until the clay has completely hardened. While this is occurring, lay out a circle on paper of the proper diameter and lay the patterns in place to determine the proper spacing. Attempt to balance relative part mass by distributing equal sized parts diametrically opposite each other. Don't forget to provide space for the tie-down bolts and spacers. Also, fabricate a pouring sprue blank equal to the diameter and a length of one-half mold thickness plus 1/16 inch.

Now, using the plan devised on the paper circle, start embedding the patterns to their parting lines in the clay. Be very careful to obtain sharp parting lines between the clay and the pattern. The success of the mold may depend entirely upon the care taken at this time. When all of the patterns are in place in the clay, slide the bolts through the bottom plywood and the spacers. Place another set of spacers on the upper ends of the bolts. Thus, there are now spacers equal to the full thickness of the mold. Using rubber cement, glue the pouring sprue to the under side of the top plywood in the exact center. Allow to dry for a few minutes and then slide the top plywood over the bolts. Press down until the plywood is bottomed out against the spacers. Now remove the top plywood, upper spacers and bolts. Peel off the tape "can" wrapper. An impression will now be in the clay where the pouring gate blank is to be positioned. Remove the pouring gate blank from the top plywood with

lacquer thinner and position in the proper position on the clay. Sprues can now be cut and installed from the part to the pouring gate blank. The end of the sprue that butts against the part or pattern should be turned to a long taper. This permits the break off of the part from the sprue with little clean up. If the opening from the sprue to the part later proves to be too small, it can be opened up with a razor blade or knife.

The upper mold half should now be ready to pour. Check once again that all patterns, sprues and gate are firmly seated into the clay to the parting lines – make sure the parting lines are clean. Replace the bolts through the bottom plywood, spacers, and add the upper spacers and top plywood. Wrap the two plywood pieces with gummed paper tape. Staple the tape to the bottom plywood and remove the top plywood. Once again we have an open top "can" with tape sides and a clay bottom (with patterns, sprues and a gate protruding). Three bolts with spacers are also protruding. See the drawing for Step 1.

Now is the time for rubber. I leave the choice of rubber and the mix formula to you. However, after many years of working with the various types, I recommend General Electric RTV-60 as a general purpose molding rubber. RTV-11 is excellent for some items and surface coatings.

The rubber must be weighed very accurately in order to determine the proper amount of catalyst to be added. The best results that I have experienced were obtained with 5 drops of the Thermolite-12 (furnished with the RTV-60) to an ounce of rubber. Use the medicine dropper furnished with the RTV to assure even drop sizes. The rubber of the proper amount is placed in a disposable container, weighed, and the catalyst is thoroughly mixed in. If a vacuum pot is available, vacuum the mix to remove all air bubbles. These bubbles are so small that they cannot be detected visually, however, they do affect the mold. Vacuuming increases the amount of rubber space required by a factor of four so be sure that an adequate sized container is used. The rubber will foam up and then return to its original position as the bubbles burst. A common pressure cooker can be hooked to the intake of an air compressor. This will usually provide sufficient vacuum to destroy most bubbles. If a vacuum is not available, use care in mixing to prevent excessive air induction, let the mixture set for a few minutes and break what bubbles do arise to the surface. The rubber will remain fluid for a considerable period of time; however, work fast in all operations.

Using an ordinary clean water color brush, paint all patterns and the clay surface with a thick coat of rubber, being sure to thoroughly work the rubber into all surface detail and holes. The rubber will tend to settle out and cover things, but sometimes air will be trapped and must be worked out, especially on intricate surface details. Once the surface is completely covered and has settled, the remainder of the rubber can be poured. Pour a sufficient quantity to bring the level up to the top of the spacers and the pouring gate. Add a slight amount more spread evenly over the surface. Allow to set for about one-half an hour, breaking all bubbles as they appear on the surface. The entire mold can be vacuumed; however, care must be taken to prevent over-foam. Install the top plywood over the bolts and inside the tape band. Place nuts on the bolts and tighten until the spacers are tight against the upper plywood. See the drawing for Step 2. You will have a slight amount of excess rubber squeezed out through various openings and cracks. Actually you are applying pressure to the rubber. The pressure causes the remaining air bubbles to decrease in size, and forces the rubber tightly against the patterns. Set aside for at least twenty-four hours. This is longer than required, but remember that haste makes waste, so regardless of how much you would like to see the result, be patient.

Twenty-four Hours Later

Remove the tape from the sides of the mold, loosen and remove the three bolts. The plywood should peel from the rubber surface. Be careful not to disturb the patterns any more than possible. Now peel the rubber disc from the plywood and clay. Some of the patterns will stick in the clay and some will remain on the rubber. Clean all the clay from the rubber surface and trim any rubber leakage. Clean the patterns and reinstall them in the rubber half, refitting them in the same locations with the rubber tightly against the patterns. Replace all the sprues in the exact location in the rubber that they occupied during the pouring of the first half. The pouring gate will probably remain in the rubber, but if it does not, carefully re-install. Now we have to work upside down. Place the top plywood piece upside down with the holes through it. Carefully re-install the rubber disk over the bolts. The spacers should have remained in the rubber disk. Place a second set of spacers on the bolts and install the bottom plywood in its original position. Again make the sides of the "can" from tape, stapling to the top plywood piece which is now on the bottom. When completed, remove the bottom plywood (which is on the top) and check to see that none of the patterns have been disturbed in the rubber. See the drawing for Step 3.

We must now apply a parting agent to the first half of the rubber mold in order to permit the pouring of the second half. Some RTV manufacturers recommend a 5 percent mixture of common liquid household detergent, mixed with water, while others recommend a grease type parting agent. The only thing I have found usable and easily applied is an aerosol spray of Teflon applied in a very thin coat over the rubber and patterns. This product is Fluor-Glide made by Chem Plast Corporation of New Jersey. Spray the entire rubber mold face and the patterns with a very light coat. it will disappear into the rubber, but it is there. Excessive amounts will cause trouble and if it can be seen as a complete white coating, you have over-sprayed. Pour the second half using the same techniques and procedures used when doing the first half. See the drawing for Step 4.

Let the second half cure a sufficient amount of time, then separate. The patterns, sprues, and gate can now be removed and a close examination of mold halves made. Slight trimming in the gate-sprue area may be necessary due to rubber flow. Be careful not to cut into the pattern recess. The mold becomes stronger if you let it age over about a week. However, most modelers will do a trial shot right away.

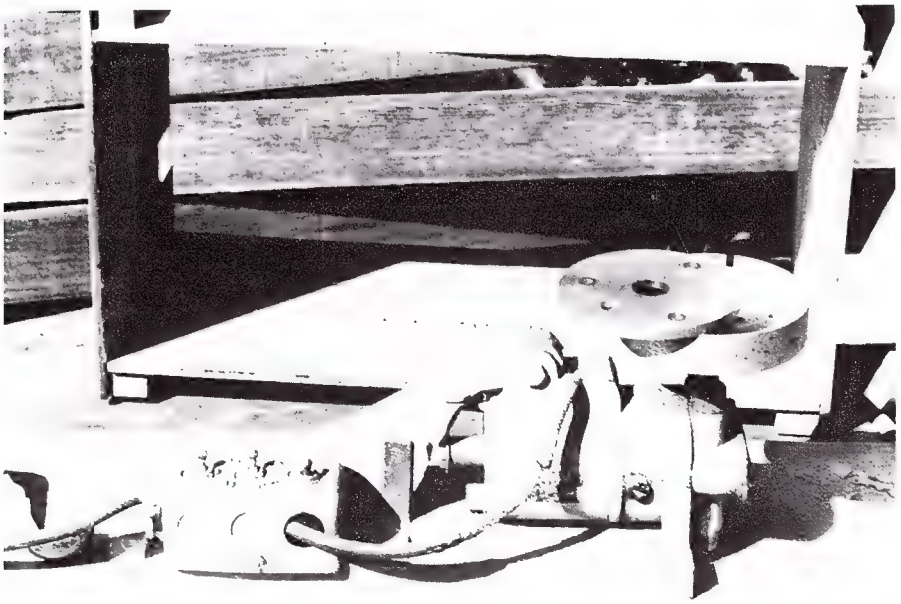
Casting Machine

Any motor unit can be used as a drive; however, the RPM of the spin table must be limited to prevent centrifugal force from forcing metal between the mold halves. After investigating several setups and systems, I decided that the simplest would probably be the best. I got an old Mixmaster with a burned-out speed control. This was adapted for used by replacing the variable speed control with a set of fixed resistors to give three speeds. For most operations, at least with a four-inch diameter mold, full speed will give proper filling of the mold. The other speeds will be used with larger molds or with larger parts.

The spin table is a four-inch, inside diameter, aluminum can fitted with a drive for the Mixmaster. The shaft is a bolt with the head removed and a slot ground in the side to engage the ball in the Mixmaster drive. A cover plate with a central pouring hole fits inside the can. The spin table and the cover are drilled to the same hole pattern as used in the plywood form blocks. The cover is essential to prevent the mold halves from separating and spraying metal all over. See drawings for details.

Casting

Now you have a mold and a casting machine so let's make some castings. Melt down a pig of Cerro-Bend (don't get it too hot, but be sure that it is all melted, the temperature should be about 190 to 200 degrees). Put your ladle where it will be heating up. Put the mold in the spin table, install the cover and snug up the bolts. Incidentally, the double spacers should be removed and a single spacer installed so that it is between both mold halves. Well, shall we give her a go? Turn on the motor and get the table up to speed. Using a small funnel, pour in a spoonful of metal through the cover hole. Goofed already, huh . . . too much metal so you threw a little? Well, that's something you have to learn, how much metal the molds will



The Mix Master casting machine. This is the machine shown in the drawings. The spin table is shown in place. The top for the spin table also shows. The box in the background goes over the casting machine to catch any metal that might fly out of the mold. You can see a line of fugitive Cerro Bend on the inside of the box.

hold. Pouring fast will help molds to fill, but you do take a chance of putting in an over-abundance of metal. Right now would be a good time to put an open top wooden box around the casting machine to contain any metal overflow. It will happen from time to time. The casting should be set by now (a couple of minutes) so shut off the motor and after it has stopped, remove the cover and remove the mold. Did you get some flash in the can? You must not have had the tie-down tight enough. Again, this is something that you can only learn by doing.

Open the mold and let's see what you got. Probably only a partial fill or nothing in the sprues. Can be one of several things, but try another shot first because the mold has to heat up before it will shoot correctly. If it still does not work, there is a possibility that you have tightened the tie down bolts too tight and have closed off the sprues feeding the parts. Try again, not quite so tight. If this doesn't help but gives flash in the can between the mold halves, it would appear that the sprues are too small. Open them up a little. There are a couple of other things that can help to improve the filling of a mold. By placing the parts at a slight angle to the pouring gate to take advantage of the velocity of the direction of rotation, parts will fill better. Once in awhile a part just will not fill no matter what you do. This is usually an air lock. A knife cut from the part to the outside of the mold will usually cure this problem. The cut will permit the air to escape, but not the metal.

Now you should be getting parts, but all of a sudden they look peculiar. If you ignore this a few shots later you will discover that the metal is still molten in the mold after a normal spin period. The problem here is that the silicon rubber is a good insulator, and consequently will absorb and retain the heat from the metal. Eventually, it will get hot enough that the metal chills slowly. When metal chills slowly the result is large metal grain. If you don't let her cool off a bit, pretty soon the metal won't chill in the normal time period and when the mold is opened the metal will run out on the bench.

A couple of other items which may help out. By placing the deepest fill in the lower mold half, the air space in the upper mold is minimized resulting in better filling A coating of baby powder on the mold halves (shake off the excess) will give a matte appearance to the castings. Too much powder will contaminate remelted metal however.

Resin Molds

The durability of RTV molds, while good, is limited and they wear out in due time. In an effort to increase mold durability, an attempt was made to use metal filled resin molds. While this provides excellent castings, it does have some limitations. The mold is not flexible, so straight draws are required with draft, and the metal filled resin molds must be provided with release agents to preclude them bonding to patterns and each other. In addition, the mold must be heat treated to at least 50 degrees over casting temperatures.

The mold material used is Devcon Aluminum Filled Epoxy, type F-2 and the mold making process utilizes the same steps as outlined for RTV molds except mold release must be used on the clay patterns in each step. A wax type mold release is recommended rather than a spray type. Apply a thin layer of wax, allow it to dry for about five minutes and buff thoroughly, especially in small detail, cracks, joints, etc. Be absolutely sure this is adequate draft for all patterns, sprues and gates and that all cracks the F-2 can run into are filled, otherwise the pattern is going to be buried in the mold material. When this happens, it's almost impossible to get it out. I know, I've done it. When the mold halves are complete, the pattern removed and everything cleaned up, heat treat the mold in the oven for at least an hour at 50° F over casting temperature. The first castings usually provide excellent parts due to the rapid chilling and resultant small grain size. Resin molds may retain some heat and eventually have large grain marks, so let them cool off. These molds should last forever with proper care.

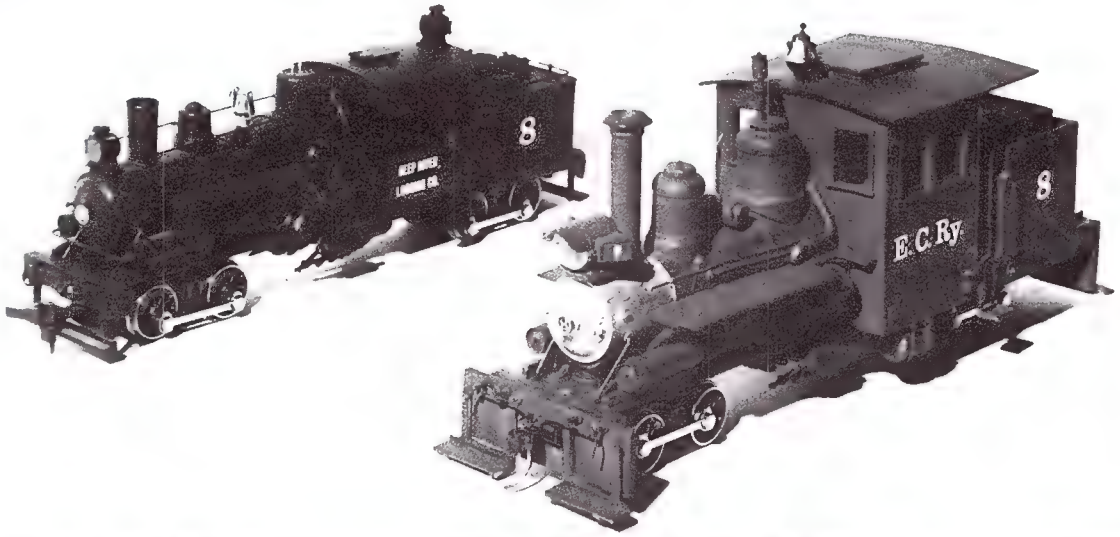
Modified Lower Cost Molds

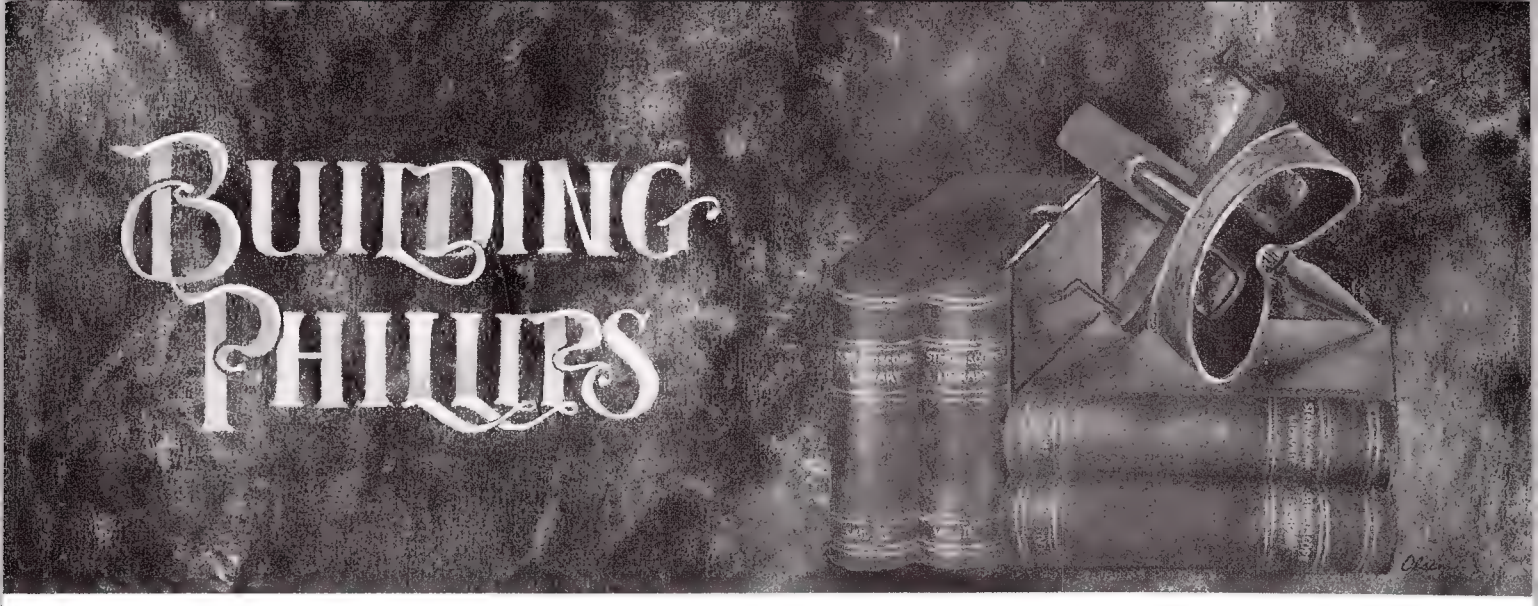
The price of RTV has increased drastically since the original version of this article first appeared in the September 1966 **FINELINES**. The following technique may be used to reduce the mold cost and provide additional mold flexibility for extraction of complex parts.

Prepare the mold form with plywood disks, clay and paper tape in preparation for the first half-pour of RTV, as described previously. Carefully paint RTV over all parts and the clay gradually building up a layer of about ⅛ inch thickness. Let the layer cure thoroughly leaving the paper tape and spacers in place. Mix a batch of plaster or Hydrocal and pour a layer into the mold cavity, working carefully down on the RTV layer. Reinforce with some nylon mesh material (your wife can help out here) and pour the balance of the container full. Install the plywood disk and tighten up the tie-down bolts. Disassemble and repeat for the second half. When completed you have a plaster slug with an RTV split liner where the actual casting takes place. In use, the RTV may be removed from the plaster and being thin allows the RTV mold to be peeled from extremely complex parts. The plaster also provides a heat sink, drawing heat from the RTV molds and providing a longer casting time before the RTV heats to a point where the castings will not chill. Care must be exercised to prevent tearing the thin RTV liners or breaking the plaster mold backings. The plaster backings must be thoroughly dry prior to use.

EAGLES CREEK HEISLER

If you are interested in low cost narrow gauge modeling look into On30. By combining HO mechanisms and track components with existing ¼ inch scale parts you can build some exciting models. Tom Eagles took an HO gauge AHM Heisler and added some Kemtron parts, some styrene, and a Grandt Line 13 ton Shay coal-load. The little locomotive is perfect for his Eagles Creek Railway. The lettering was done by Dave Birmingham.





Part 7: The Phillips Station

by Bob Brown

The first station at Phillips was a classic New England covered station. These little high roofed buildings were located at Phillips, Kingfield, and Strong on the early Sandy River Railroad. They were all eventually replaced with more conventional railroad stations. This lovely station really "made" my scene. When I put away my paint brush and stood back to admire my new station I was astounded at the effect. The building really "shouts" early Sandy River as you look at it. My model is arranged so you can look down the track and through the timber framing that forms the inside structure of the station. I have a woman in long skirts waiting with her baggage for the next passenger train and I can see the sacks and other freight waiting to be loaded in the next head end car to come along. The building has atmosphere and this atmosphere has rubbed off on the whole Phillips scene.

I based my station on three photographs of the prototype plus the excellent plans by Bob Hayden in the February 1975 **RAILROAD MODEL CRAFTSMAN**. Bob drew up and built a composite station but the basic dimensions seemed accurate so I used them. The Phillips station was much longer than Bob's building. I had to cut mine down to 75 feet so it would fit the scene. However, as far as I can tell I have the correct number of doors and windows in my structure.

I built the sides of my model out of Kappler clapboard siding. I used a cardboard template to lay out the window locations and cut these openings out with an X-Acto knife. The doors were drawn on and cut out at the same time. I pre-stained strips of Kappler 1×10 inch wood and glued these strips to the inside of the clapboard walls. I put this sandwich under weight and after it dried I cut the window and door openings again to clear away the 1×10's. Next I glued the interior studs into place using Kappler 4×6 inch strips. Each wall was again placed under weight until it dried. White glue has a tendency to wrap wood if given half a chance.

I painted each wall before assembling the building. I have not been happy with the paint on some of the other buildings on Phillips. I find it hard to get a realistic weathered white building. So I brush painted each wall with a coat of Floquil Driftwood stain. I painted a small area and then dipped my brush into a bottle of full strength Reefer White and streaked the white onto the side of my building. The white tended to mix a little with the Driftwood. This created a very pleasing white gray weathered look. I spray painted the Grandt Line doors and windows Pullman Green and installed window glass before installing the window castings. I used the new Super "T" Hot Stuff to glue in the windows. The large doors were trimmed with strips of wood pre-painted Pullman Green. When the walls were done I assembled the ends and sides into the basic building.

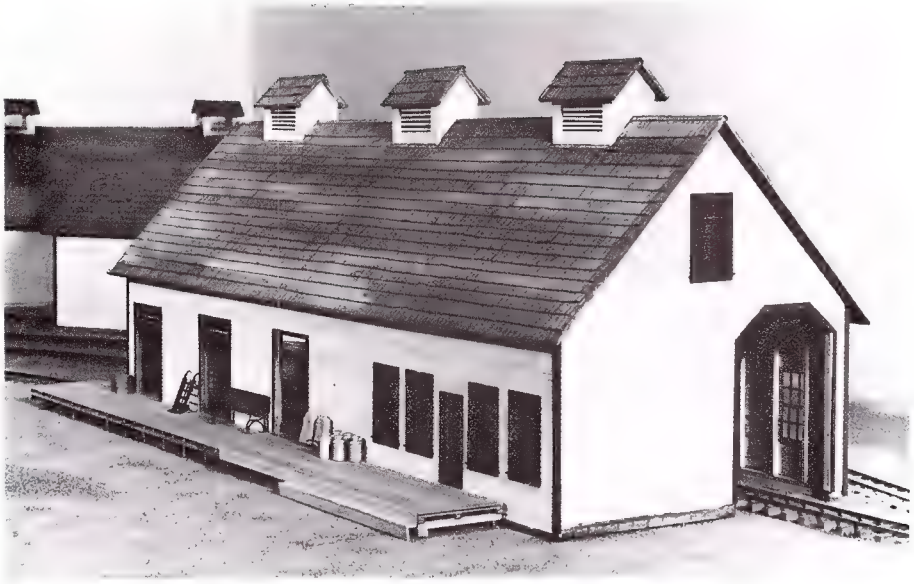
The outside platform was assembled from individual strips of wood. The inside platform was made out of a solid piece of plywood which was covered with scale 1×10's. This platform was faced with more 1×10's along the track side, inside the structure. I glued down some Kappler ⅛th inch scribed siding for the office floor. The inside walls of the office were made out of thin scribed Kappler sheet wood with 4×6 inch studs glued on where they would show inside the building. The floor was stained with Oak stain and the walls were painted with Floquil Foundation.

I decided to use a piece of matte board for my roof. I cut the roof out in one piece and made a cut down the middle and folded the roof on this cut. I then made a template with the correct inner shape and used this template to lay out and glue my roof rafters. The roof rafters were made out of Clover House O scale standard gauge turnout ties. As each roof rafter assembly was completed it was glued onto the inside of the roof. The roof was covered with Model Masterpieces Masterwood II shingles. I used Super "T" Hot Stuff to glue down the shingles. The roof was edged with strip wood and stained with a mixture of Oak, Driftwood, and Grimy Black. The roof vents were made out of scribed sheet wood and roofed with shingles.

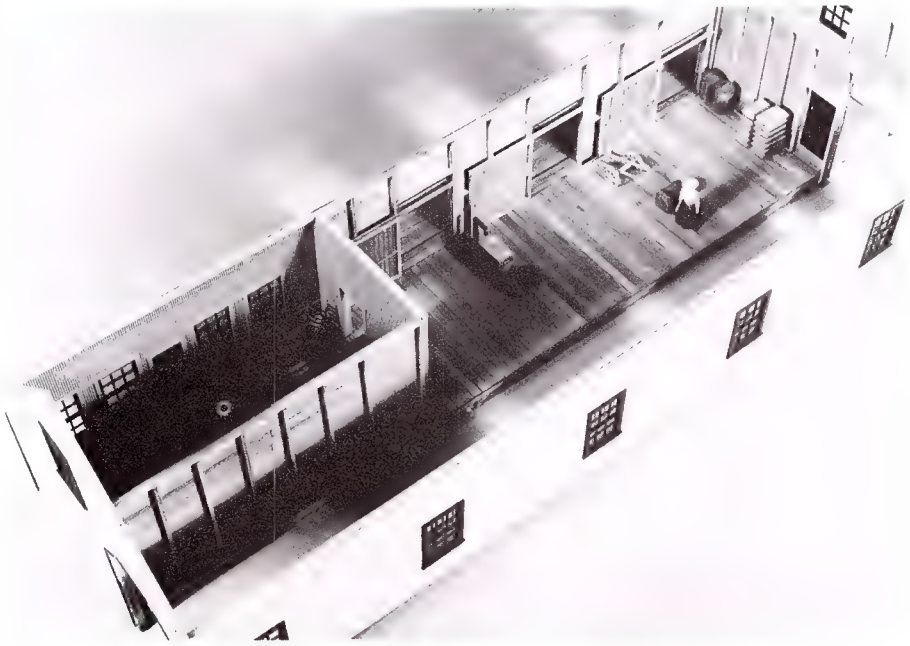
Time caused me to cut short the interior detailing of the model. I hope to go back and add more detail in the future.

I used a mixture of Model Masterpieces, Chooch, Yorke, Don Winter and Detail Associates products to detail my station.

In Part 8 I plan to discuss the scenery on Phillips.

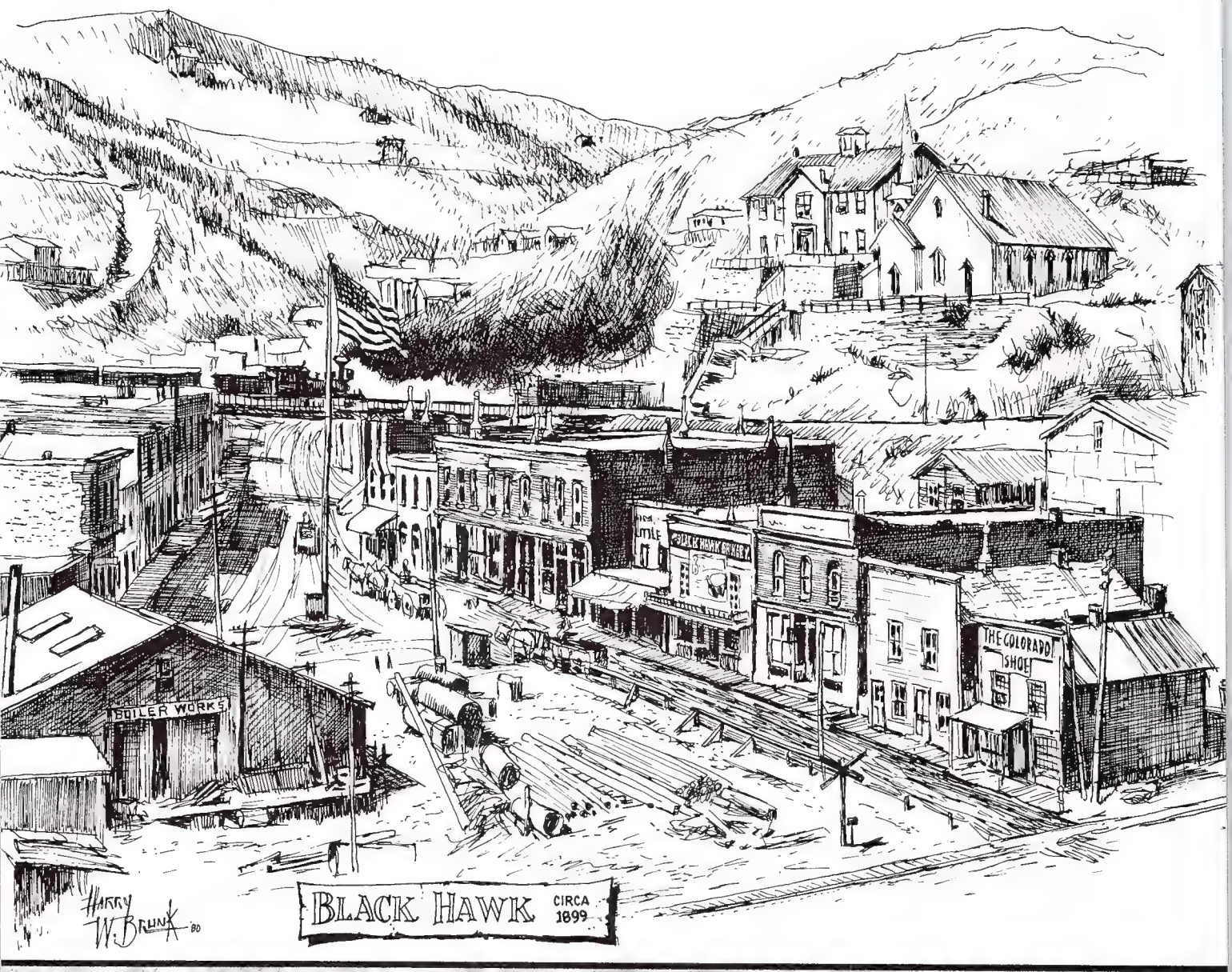


The original Phillips station in ¼ inch scale. The building is sitting on an incompletely "sceniced" layout. The doors were left open so the interior would show.



The open freight doors show clearly in this photo. Notice the planked floor and the interior framing.

The office area. The arrangement of this section of the station is pure fiction since no information on the interior of this building has come to light, yet. The office details are by Yorke, Chooch, Model Masterpieces, Detail Associates, and Don Winter. The clock casting is a Cerro Bend part by Gene Deimling.



Up Clear Creek on The Narrow Gauge

Part 6: The Corner of Railroad and Gregory Streets

by Harry Brunk
Photos by the author

The three buildings next to the tracks on Gregory Street were among the earliest buildings in Black Hawk. The two frame structures and the one brick building saw their share of changes. They changed along with all the other ever changing features of Black Hawk.

Today, only the brick building remains, once again doing business as a grocery store as it was in long-ago 1899. Note the many obvious changes this brick grocery underwent through the years.

Across the street where the Boiler and Sheet Iron Works will eventually be, the corral of the livery stables appears in the 1864 view. Ore wagons and teams rested here between runs from mine to smelter and back. By 1899 this changed, and in the 1899 sketch we see the smaller building for the growing Boiler Works. In part 7 we'll see how this grew and prospered.

Identifying the businesses that occupied many of the buildings in Black Hawk is tricky. As modelers we tend to think all businesses had huge brazen signs that could be read blocks away, but such wasn't often the case in Black Hawk. The

The 1899 view up Gregory Street shows Black Hawk as settled as it ever would be. Business seems to be recovering from 1893 panic judging from the ore wagons headed up the gulch. The three buildings on the right next to the tracks are as they appear in the plans.

frame structure in the middle of this group of buildings never sported a sign I could detect in any of the photos throughout its lifetime.

As Rick Steele points out, Black Hawk and Central City were the victims of Colorado's first case of "urban sprawl". They had an abundance of grocery, hardware and dry good stores. They also had plenty of saloons, though by the 1930's (prohibition) many of these were closed down or at least operating under partial wraps.

Since there was no sign to be seen on the middle frame structure, I've labeled it "Rooming House". It could just as well have been an early office building, or in the wide-open early days a "sporting house". On the plans I've included a stairway to the second floor between it and "The Colorado Shoe". This was included solely on the indication of what seemed to be a handrail showing there in the late 1870 photo my sketch was based on. At any rate, there was either a door (if the stairway is correct) or a window at the dotted line location shown on the plans. The "Rooming House" appears to have been white with window and door frames and upper trim a slightly darker color – I chose orange for mine. The HO windows are Timberline, the windowed door is scratch-built, the other is Campbell. The roof is Campbell shingled.

Timberline had an HO scale "flat" kit (front only) and later a full building kit based on "The Colorado Shoe" some time ago. This is a fine kit, though slightly larger than these plans. Their full building kit did not follow the actual conformation of the prototype shoe store and the correct version is shown on the plans here. If you're building in HO, the kit could be a good starting point for a "kit bash" project. I had the "flat" kit front to work from for my UC&N "Colorado Shoe" model. White metal castings with correct muntin configuration were substituted for the second floor windows (maker unknown). Campbell has a good substitute here. Grandt Line S scale 12 pane double hung windows were used on the first floor. Though the pane number is not correct, the overall size and appearance were close. The front was cut down in all dimensions to follow the plans here. The Shoe front was probably a cream or very light buff color with darker trim, (box car red was used on mine) doors and awning. The trackside and back as well as the rear addition appeared to be unpainted. The track facing wall had a multitude of posters as seen on the UC&N model photos here. Mine were circus and recruiting posters from **THE MODEL RAILROADER**. The roof was tar paper – mine was tinted red.

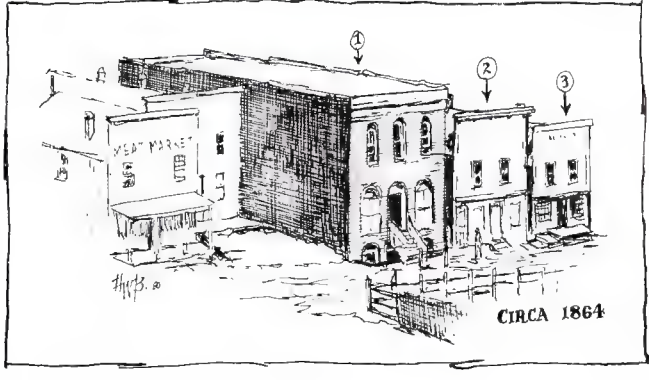
The Grocery was cast in hydrocal plaster from a brick mold made some time ago. All windows and doors were scratch-built both front and back. I chose the 1899 appearance of white first floor, natural brick upper. The sign was lettered as it seemed to appear on a fuzzy photo of that period. All three buildings have correctly scaled fronts and backs, but the lengths of all three were reduced proportionally to conserve space. The appearance and "feel" of the three didn't suffer.

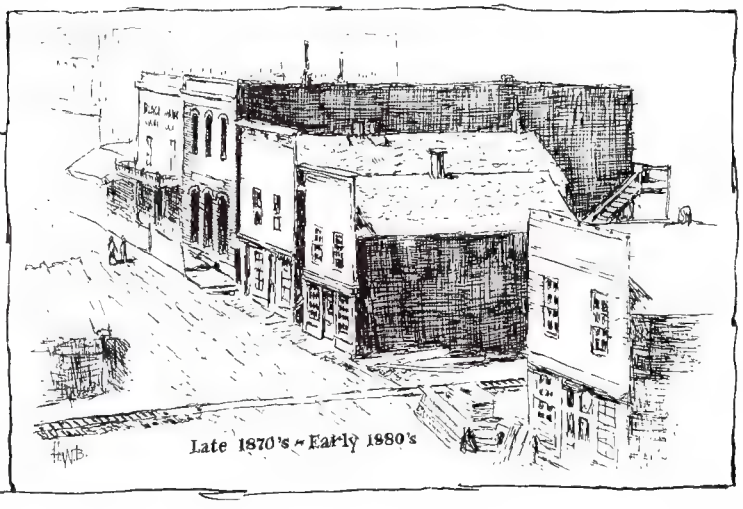
Parts 7 and 8 will investigate the Black Hawk Boiler and Sheet Iron Works and the attending Machine and Blacksmith Shop. These were going concerns and undoubtedly good shipping and receiving customers for the railroad.

The Black Hawk Grocery as it is today. The sole survivor of the three buildings at the corner of Railroad and Gregory Streets.

By the late 1870's the railroad had arrived in Black Hawk. The basement windows and doors of the brick building are covered by a substantial board-walk, and work has begun on the rest of it. There is still a "new" atmosphere, as construction materials stand in piles all around, and the track hasn't acquired its settled look yet.

In 1864 everything was new in Black Hawk and the board-walks weren't even in yet. The brick face featured all arched windows and doors – including the basement walk-down. The two frame structure faces were substantially the same as the plans show, though the shoe store hadn't received its large sign or awning yet.

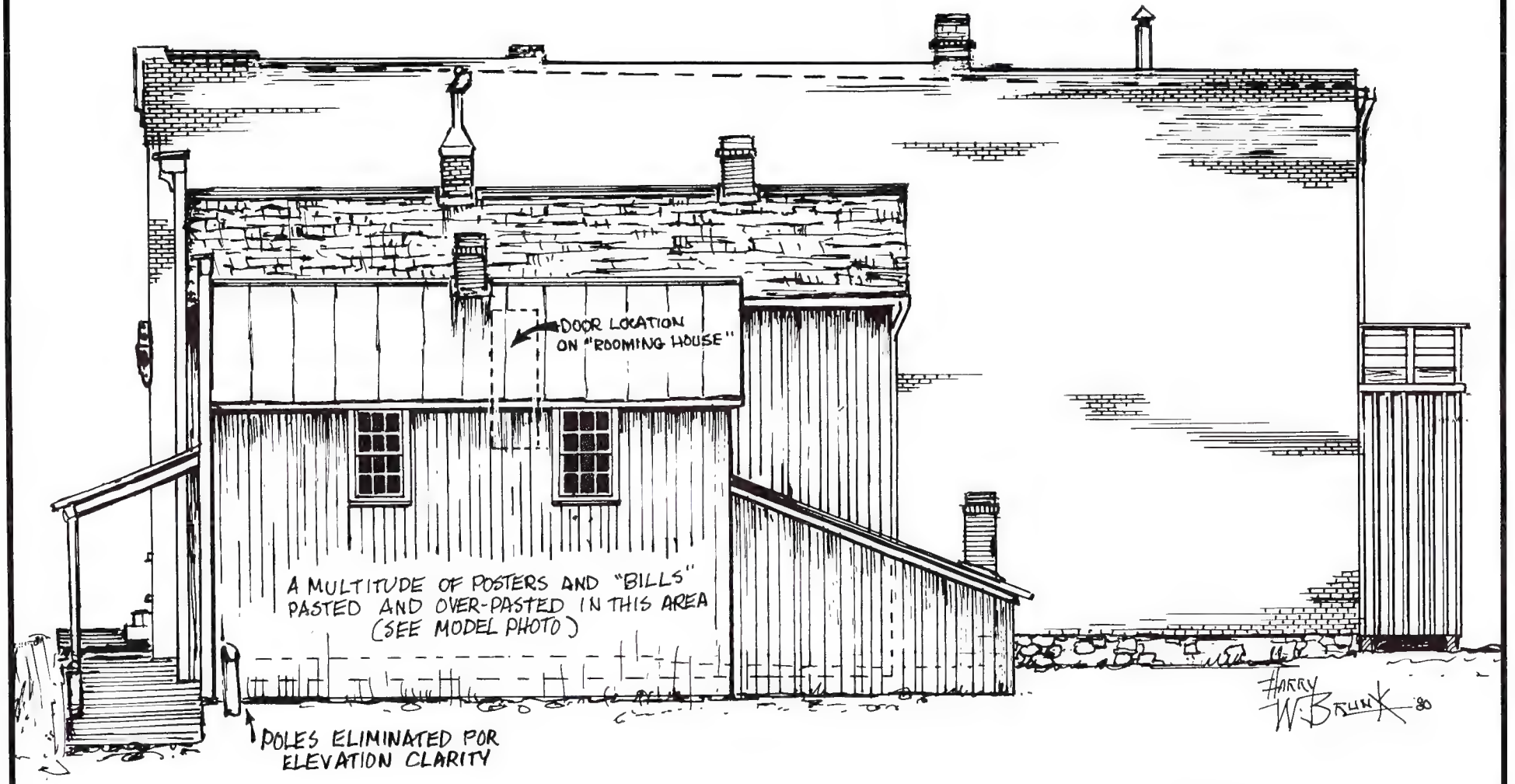


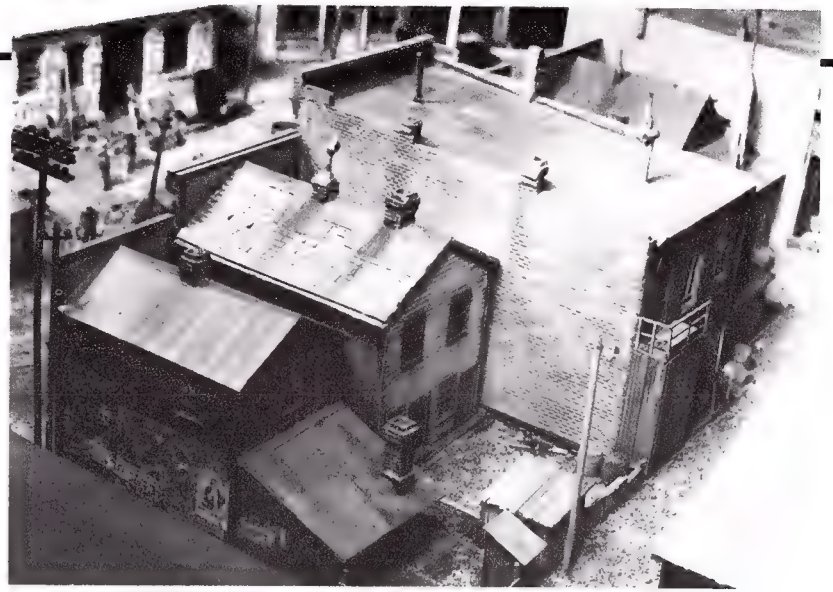


The UC&N Railroad and Gregory Street trio following the 1899 pattern. Note the posters on the trackside of the shoe store. Its depot buff front should have been lightened some.

FRONT ELEVATION

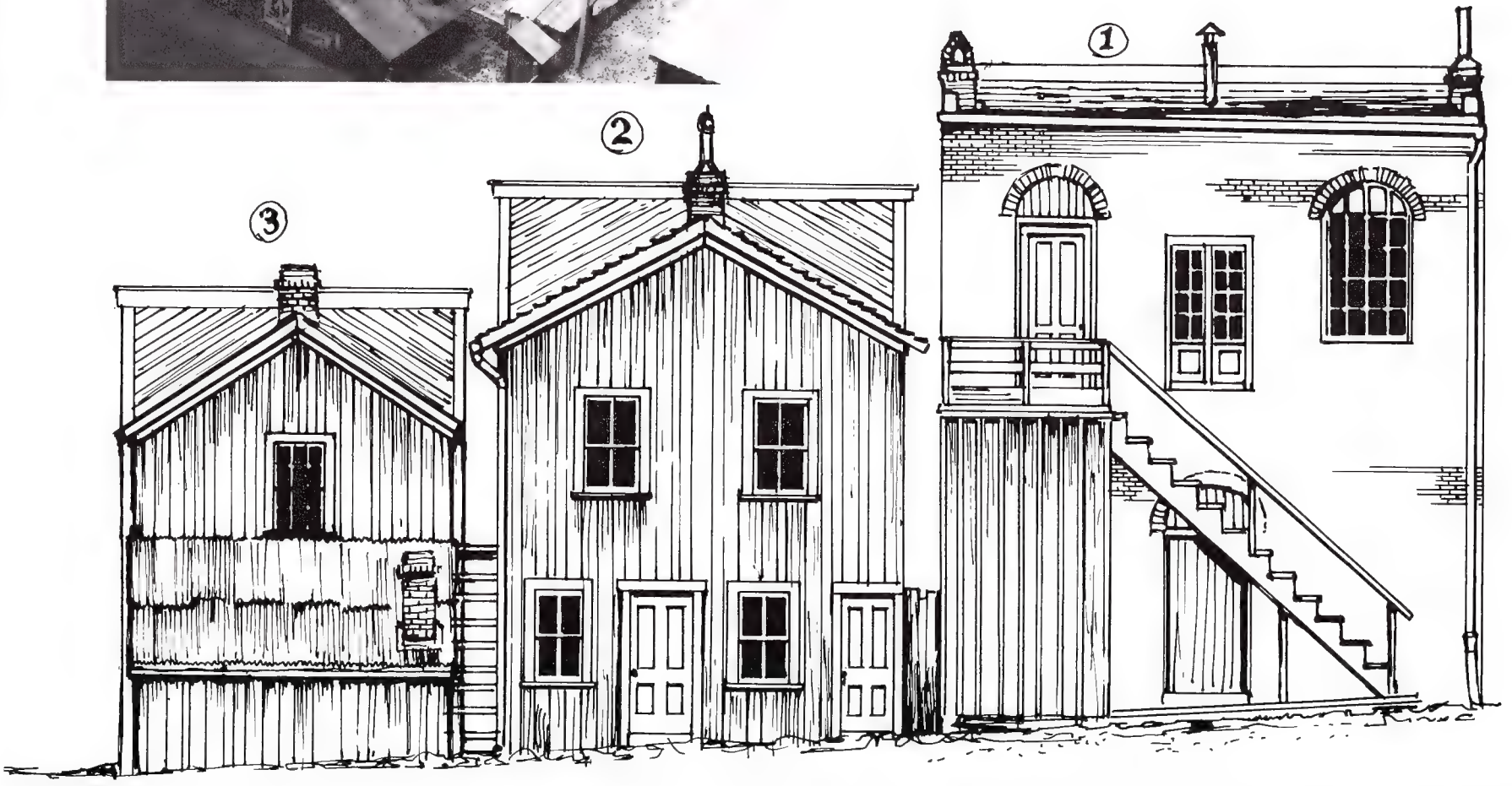
TRACKSIDE

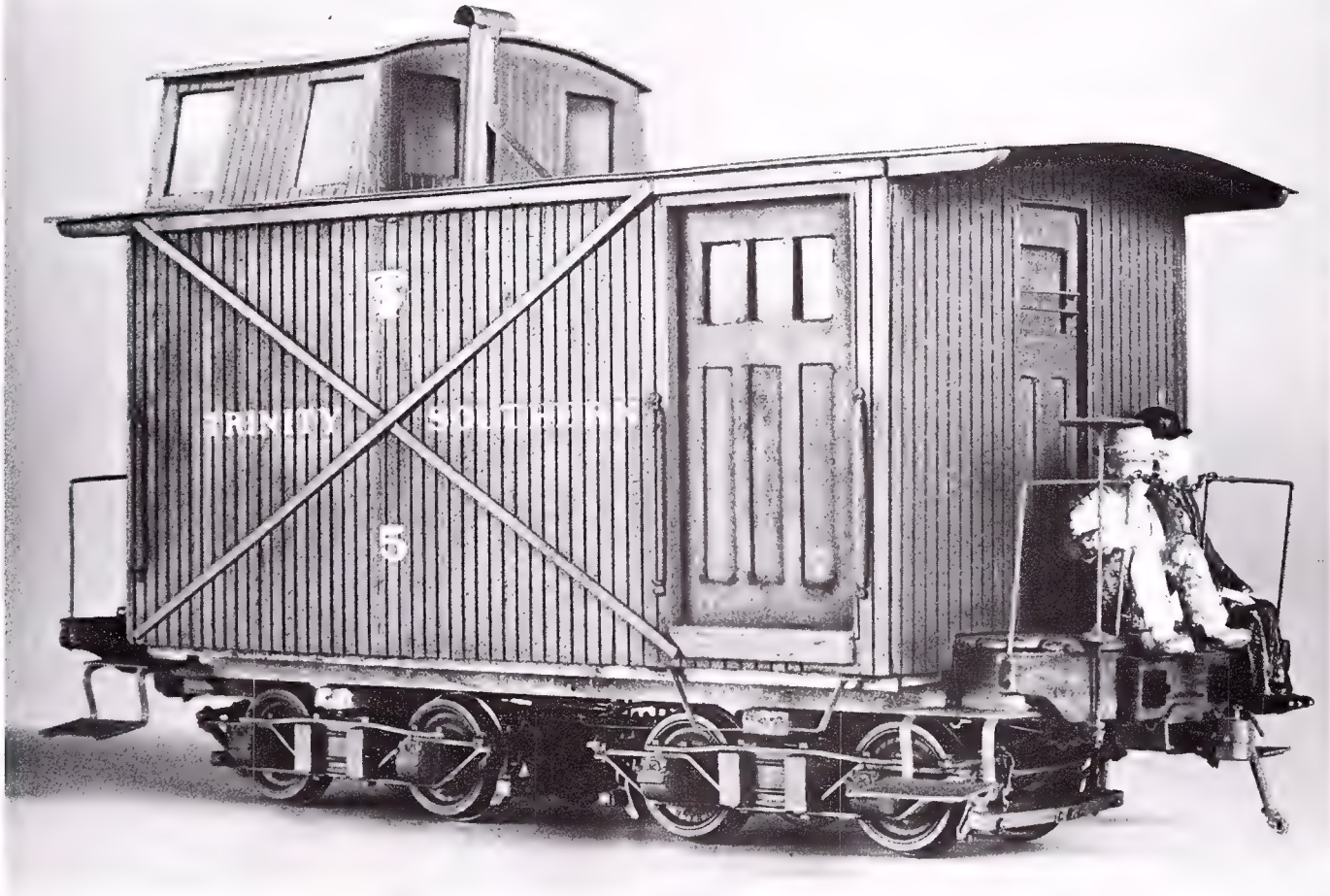

DOOR LOCATION ON "ROOMING HOUSE"
A MULTITUDE OF POSTERS AND "BILLS" PASTED AND OVER-PASTED IN THIS AREA (SEE MODEL PHOTO)
POLES ELIMINATED FOR ELEVATION CLARITY
HARRY W. BRUNK '80
3.5mm = 1 foot
6"
0 1 2 3 4 6 10 15



The "alley" or Selak Street side of the Gregory Street group of buildings based on an 1899 photo on display in the Black Hawk Grocery.

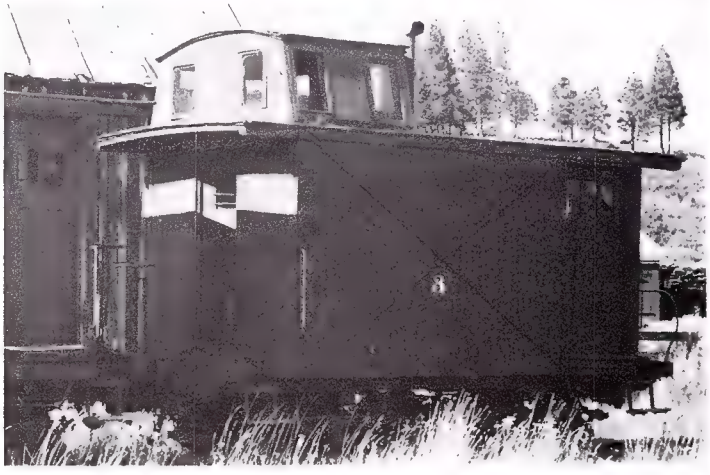
REAR ELEVATION





Trinity Southern Caboose No. 5

Blue Ribbon Series



by Steve Skold
Photos by Don Cabrall

Trinity Southern's Caboose #5 began life as a Simpson Hobart Estate Mills Caboose Kit. This was my first venture into ¼ inch scale. It resulted in the dismantling of my HO Whiskey town & Shasta and the creation of a new On3 empire out of the splinters.

My construction of TS #5 basically followed the Simpson kit instructions. I stained it with the leftovers from a Beverly's Antique Kit. The wood parts were glued with Eileen's Tacky Glue which dries to a rubber-like consistency rather than the brittle finish of white glue.

The walls and doors were painted before they were glued together. I laminated cardstock to make the doors. Be careful because cardstock has a tendency to tear when you try to cut sharp corners. I feel now that styrene sheet would have been a better medium for the doors. After I sprayed the walls and ends, dry transfer lettering was applied. I used lettering from two different size alphabets. The herald was made by superimposing a small S over a large T.

Styrene sheet was used for the roof and cupola rather than cardstock. The roofs were made from .010 sheet styrene and the sides of the cupola were fabricated from Evergreen scribed styrene. After I sprayed the roof sub-assembly, I attached it to the sides and ends using ZAP to bond the styrene and wood together. The windows were made from the plastic packaging material in the kit. When I oversprayed the model with Dullcote, the windows crazed hiding the lack of interior detail.

I fabricated the metal detail parts, spray painted them, and attached them to the model with ZAP. The steps were drilled and attached to the frame using NBW castings.

Finally, the McLeod-Carter Brothers' trucks were put together with Grandt wheels and Precision Scale brake rigging. This model placed first in both kit and novice categories in the 1979 PCR Convention in Santa Rosa.

Building a 1920 International Concrete Mixer

by Gary Nash
Photos by the author

Nature abhors a vacuum and will immediately do something to fill it. This is also true of the finescale modeler. There is a "model vacuum" of ¼ scale vehicles. Therefore, I design and scratch-build my own. As I became involved in vehicular modeling I naturally worked up to more and more elaborate and challenging vehicles.

Work or Construction vehicles are a real challenge. Hood, fenders, cab and wheels are the basics in truck and car modeling. In construction vehicles you need valves, gears, piping, water tanks, boilers and pumps just to name a few.

Mic Greenberg and I coined the word "augmentables" for cleverly applied parts from unique and unexpected sources. Building construction vehicles really tests your ability to find and use augmentables.

In 1973, John Coots of SS Ltd. made available an HO kit version of a 1920 International Concrete Mixer. In their heyday these steam-powered machines were used for pouring building foundations, bridge abutments and highways. It is a most interesting piece of machinery, and a perfect choice for an O scale modeling project. I purchased this SS Ltd. kit and found it extremely helpful in the construction of this ¼ scale version. It is helpful to use other scale kits for plans and three dimensional references. I checked as many references as I could before starting the model. My first problem was finding an "augmentable" to match the shape of the large mixing drum. All the other parts seemed easy to fabricate or simulate.

After a little searching at the local hobby shop I found a pair of Testor's ¼ scale Lysander aircraft which yielded two engine cowls. Appropriately cut and bonded back to back they formed the basic mixer shape. The existing front holes on the cowls were too large so two pieces of medium thin sheet styrene were cut to a diameter large enough to cover rather than fill the holes. Pouring holes were cut in the center of each piece. Then they were glued in place on each side. Duradix Cyanoacrylate was used here and wherever a strong bonding was needed. Testor's Plastic Cement was used for normal bonding requirements.

The oversize edge of these pieces acted as a ridge for gluing HO 1×4 Evergreen strip stock. Two larger strips were wrapped around the mixer to simulate the "rails" that guided the turning motion of the drum. They rested on the four small wheels underneath the main frame. HO 2×3 strip stock worked nicely for this.

Two porthole castings from an old model ship kit fit perfectly to make the ridge around the pouring holes. A piece of HO 1×10 styrene strip stock was used to circle the drum, covering the glue seam between the two cowls. The cowls were cut to join two-thirds of the way from the mixer end. The gear teeth on the drum have to be off center to line up properly with the drive gear on the winch rod above. The strip that hides the joint also acts as a surface for the gear teeth strip. The gear teeth were a strip from a sheet of O scale corrugated metal roofing material – not a great augmentable, but close enough.

The basic frame and platform was fabricated from 3×5 O scale Evergreen strip stock and .090 thick Plastruct sheet stock. The two platform pieces were cut from the .090 stock, one slightly larger for the boiler and engine. These two pieces were framed with the 3×5 strip stock, bonding the 5 foot side to the .090 edge. This frame now had an overall size of 5¼×13 feet. The corners were sanded to appear curved. Diamond Plate stock was used for the platforms. Grandt Line HO mine chocks were used to support the small angles. The large ones were supported with C.H.B. Models chocks from 36 inch mine sheaves. The small guide wheels are from a Grandt Line HOn3 Push Car. The axles are brass rod stock and a Model Shipway pintle fitting was used for the hitch. The four main wheels are C.H.B. Models 9×30 inch belt drives. All four were equally sanded on both sides to bring the width down to 7 inches. Nine inches appeared a little too heavy for this machine.

After completing the main frame I started the side and top framing. Plastruct 2/32nd and 3/32nd inch angle pieces were used for the two lower side frames. I made a simple yet effective jig for gluing these angle pieces together. It kept vertical angle pieces steady while the plates or brackets were bonded to them. This procedure yielded two perfectly squared lower side frames.

The top framing took a bit more preparation and construction time. To recreate the curved T beam design I drew the angles and curves on a piece of medium thin styrene sheet stock and carefully cut them out with a #11 blade. Styrene strip stock (1×4 O scale) was cut the proper lengths and glued to the *tops* of these with the angle curve in the center to form the T beam shape. The two semi-vertical pieces were constructed from HO 2×3 and 2×4 strip stock to form angle pieces. Two corner plates were cut from thin sheet stock and glued in place with some Grandt Line nut-bolt washer castings. This top and bottom framing was glued to the main frame. Plastruct 2/32nd angle pieces were also used as cross brackets. Some washers,

pulleys, brass rod stock, rivets, small chock and NBW's were added to complete the frame section.

The water tank and gear/winch were constructed from an assortment of materials and parts from the augmentable file. Three fitted brass tubes were used for the tank. The inside one was cut short, capped with thin styrene, and sanded round. This gave the ends a recessed look. A thin brass rod was inserted through the center. One end was bent and the other received a globe valve from Precision Scale. The two outer bands were cut from the largest brass tube. A small collar from a C.H.B. Models three ton crane kit was positioned on top of the water tank as a filling hole cap. A gear from this C.H.B. kit became the drive gear on the winch rod assembly. A winch from an old Hetch-Hetchy kit and assorted gears from the parts box fitted this section nicely. Two Grandt Line chocks from a Coal Chute kit were used for the end grips.

The boiler and engine units were quite easy to fabricate. The boiler was made from an old Hetch-Hetchy portable boiler kit's water tank. The bottom piece was from a Grandt Line O scale engine house stack set. Brass tubing, styrene strip stock, the fire door, and the whistle came from that same Hetch Hetchy kit. The engine was constructed from a Grandt Line O scale brass switch stand bottom, a C.H.B. Models wheelbarrow wheel, a Kemtron HO handrail stanchion, a steam chest casting from a Hetch-Hetchy hoist kit, and some odds and ends from the parts box.

The hopper and the unloading chute were made last. Two more Kemtron handrail stanchions were positioned and glued in place on a brass rod. The stanchion's bottom angles were bent slightly downward. A pre-cut and formed piece of brass sheet stock was glued to them to form the chute. The ends of the brass rod were inserted in pre-drilled holes in the lower right side frame. The longer end was bent to form a handle while the other was cut flush with the frame. This end was pinched with a pair of pliers to keep it from slipping back through the hole. Both the chute and the hopper section move freely. Both hopper side sections were drawn on a medium thin piece of styrene sheet stock and cut out with a #11 blade. The same was done with the hopper bottom section. The edges of both side pieces were sanded with the fine side of an emery board to assure an even surface when gluing. Then the sides were bonded to the bottom piece. O scale 1 × 2 styrene strip stock was used to trim all the side edges and bottom. A pair of chocks were glued to the bottom near the lip to receive a brass rod previously positioned across the hole on the left side frame, thus allowing the hopper to move freely.

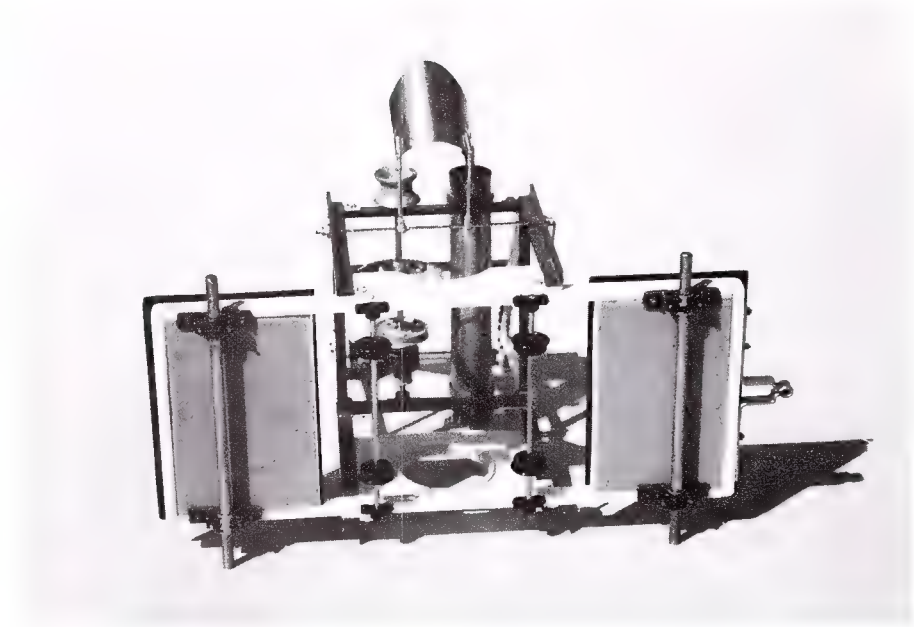
I got everything ready for painting: four wheels, the complete frame unit, the hopper, engine, boiler, mixer drum, another drain valve, and a tool box from the Back Shop. In most vehicular modeling, 90 to 95 percent of the model is glued together prior to painting. For this cement mixer I kept all these parts separate during painting and weathering. The many open and exposed parts of this particular model required good paint coverage and detailed weathering.

All painting was done with a model 150 Badger air brush and Floquil paints. The procedures were as follows:

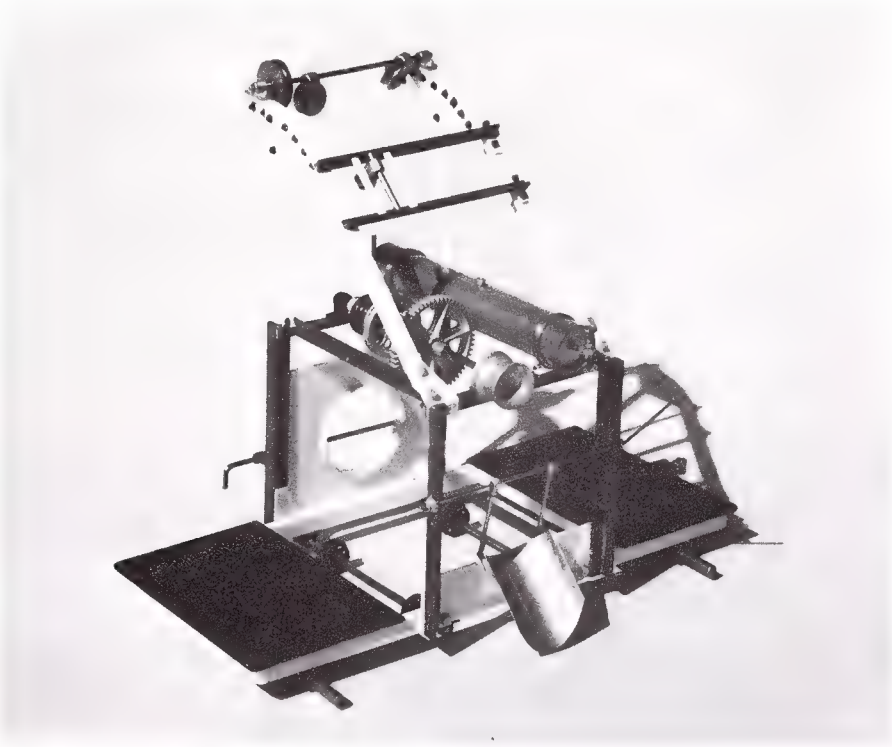
1. A 50:50 mixture of Roof Brown and Rust was evenly and throughly sprayed on all parts. I oversprayed *some* surfaces in order to build up a "tooth" in the paint. This texturing enhances the final weathered appearance. Sprayed parts were allowed to cure for one week.

2. A fine, somewhat misty spray of 80 percent Grimy Black, 10 percent Reefer White and 10 percent Graphite was applied to all parts. This gave a rusty gray look to the previous solid dark rust color. This time the curing period was only a few days.

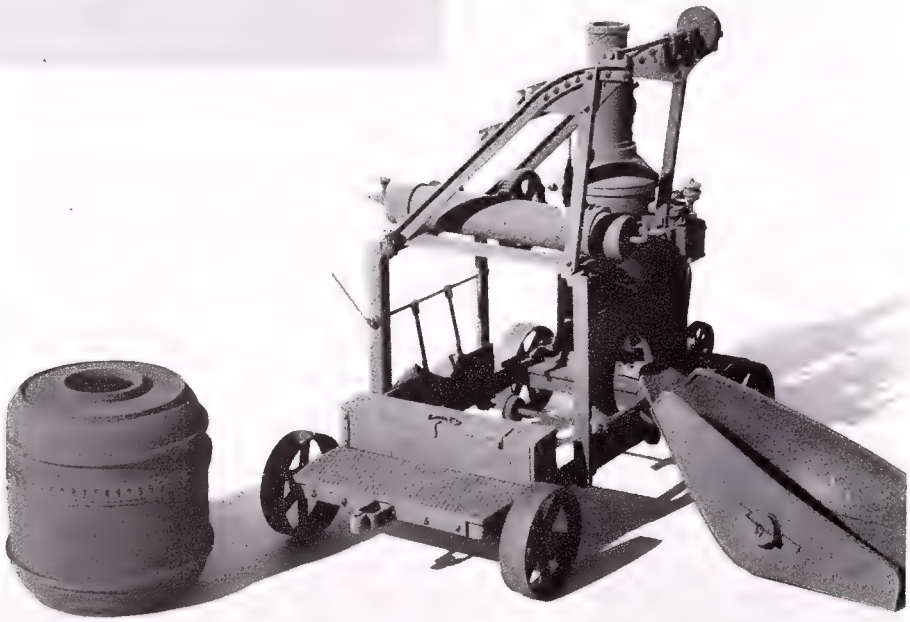
The finished Mixer Drum. The corrugated roofing strip has yet to be cemented to the wide styrene strip. One of the engine cowl remnants is also shown.



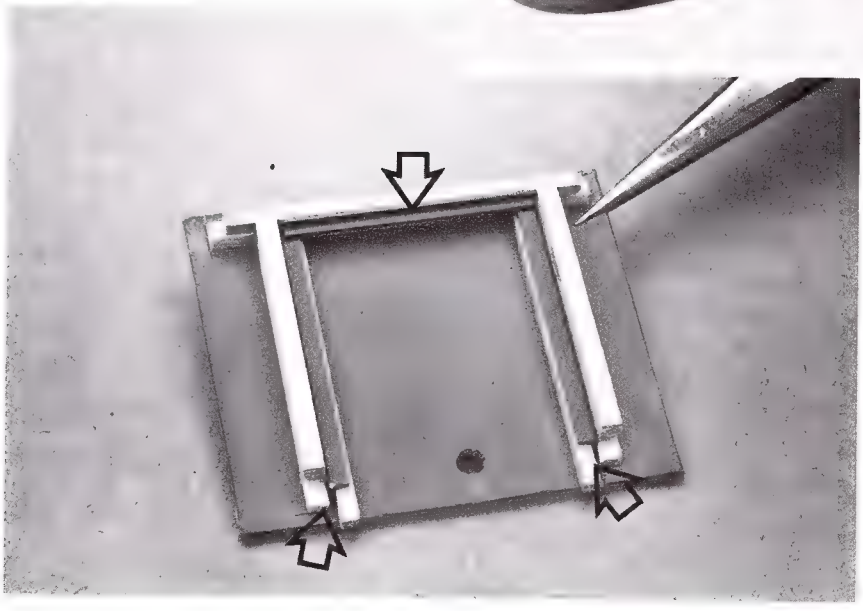
An underview of the main frame showing the placement of the brass rods, chocks, and small guide wheels.



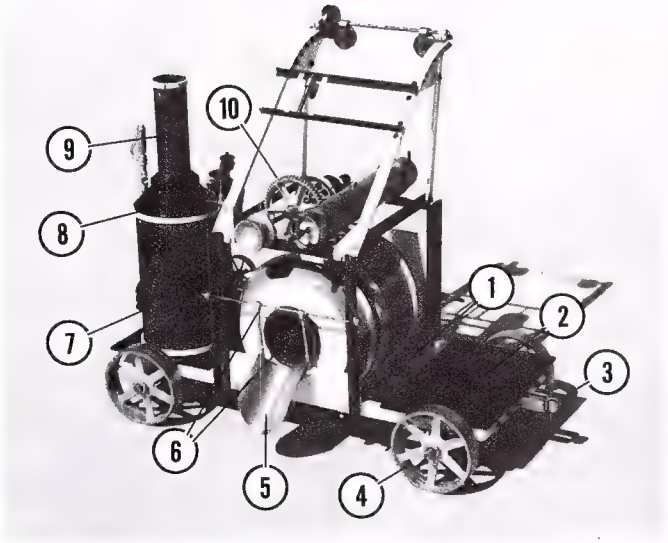
The completed frame unit ready for the Rust/Roof Brown air brushing. The wheels, engine, boiler, tool box and mixer were all painted separately. This assured *complete* paint coverage of all the many detailed areas of the frame unit.

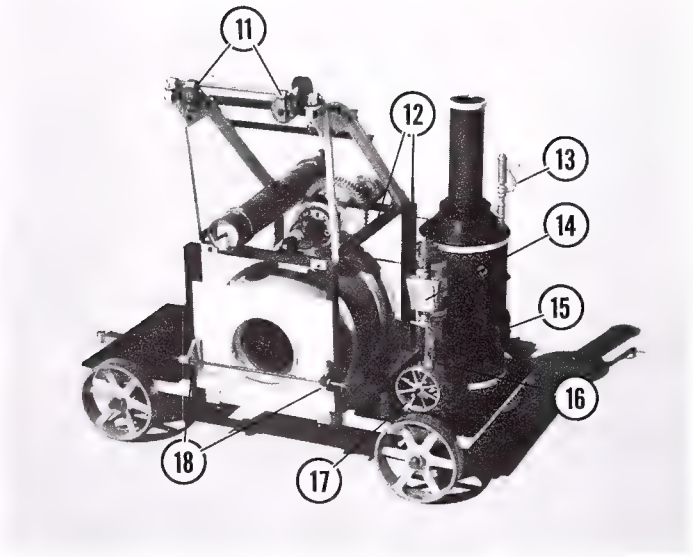


Painted with the Roof Brown/Rust and Grimy Black/Reefer White combinations. Only the frame assembly is glued in place. Other parts are merely positioned for photo. The final step of weathering with rubber cement and Yellow paint mixture was next.



The frame jig showing the Plastruct 3/32nd angle pieces in their down positions and a 2/32nd piece being horizontally bonded at the top. The top arrow points to 2/32nd cross-piece (angle up). The bottom arrows show the slots that the 3/32nd (angle down) pieces are slid into. This procedure was repeated for the other side frame. Then both side frames were ready for the addition of the pre-cut styrene sheet "walls", rivets, plates, brass rods, etc.





A pair of photos of the cement mixer in its fully constructed, yet unpainted state, show the usage and placement of a wide variety of augmentables.

1. Grandt Line HOn3 Push Car wheels
2. Diamond Plate stock
3. Model Shipways pintle
4. C.H.B. Models belt drives
5. K&S shim brass
6. Kemtron brass handrail stanchions
7. Hetch Hetchy water tank
8. Grandt Line engine house stack set, bottom piece
9. Brass tube
10. C.H.B. Models 3 Ton Crane gear
11. Model Shipways brass gudgeons and sheaves made into pulleys
12. Plastruct angle pieces
13. Hetch Hetchy whistle casting
14. Hetch Hetchy steam chest casting
15. fire box door casting
16. Grandt Line brass switch stand base
17. C.H.B. Models wheelbarrow wheel
18. C.H.B. Models 3 Ton Crane bearings cut in half

3. Prior to the final color application in step four, a healthy brushful of Best-Test rubber cement was deposited on a 3×5 card. Using my index finger I picked up a good amount which I tapped lightly with my thumb. This tapping caused the rubber cement to become tacky. I immediately applied it to those areas, where I wanted to have the rust color show through. I repeated this procedure as many times as was needed for the desired weathered look.

4. A 50:50 mixture of Reefer Orange and Yellow was now air-brushed over all parts except the wheels. Overspraying was again used selectively. The wheels were left rusty-gray.

5. Very soon after step four the previously applied rubber cement was removed with a rubber cement Pik-Up. These are available in all art stores and may be cut to workable sizes. The removal of the rubber cement let the rusty/gray show through the yellow in the spots selected to be rusty.

The boiler, engine, and drain valve were cemented to the rear diamond plate and frame respectively. The mixer drum was slipped into the frame cavity and positioned over the guide wheels. This was such a snug fit no gluing was necessary. The tool box and wheels were bonded in place and the hopper was positioned on the side frame brass rod. A fine chain was cut into various lengths for the rigging. A small rubber hose was made for the water tank.

For the last phase of weathering light gray dirt from a nearby quarry was ground to a fine powder with a mortar and pestle. This was "dusted" over the entire model and then lightly blown away. The "tooth" mentioned earlier grabs this powdered dirt and keeps it from blowing off those oversprayed areas. The top of the boiler got a bit more dust to simulate ash. This dusting gave the mixer that totally dull finish expected on this kind of machinery. For a final touch, real powdered rust was applied to the wheels and to any paintless, exposed metal.

The model now had the overall look of a typical construction company machine replete with signs of use, age, and rusting. I found this a most interesting and challenging project. In fact, shortly after completing this cement mixer I began work on a 1923 Iroquois Road Roller which I will be sharing with you in some future issue of **GAZETTE**. Both of these pieces of equipment will become assets of the soon to be built Gaillard & Blandings Construction Co. Repair Shop.

The finished product.

Centerfold:

Slim gauge, gleaming brass, red cab roof! Number 14 trails a mixed train through crisp winter weather. Thanks to Richard Bierau for this fine painting of the East Broad Top Railroad.

14

COLORADO NARROW GAUGE TANK CARS

Part 3: The Continental Oil Company – CONOCO Tank Cars

by Robert Sloan

Part 1 of this series was published in the July/August 1978 issue of the **GAZETTE**. *It covered the UTLX cars. Part 2 covered the TEXACO cars and was printed in the September/October 1978 issue of the* **GAZETTE**. *We still have a few July/Aug '78 back issues; the Sept/Oct '78 issue is out of print. Here is the long awaited Part 3 of this informative series. I apologize for the delay.* Bob Brown.

The CONX tank cars were owned by the Continental Oil Company of Ponca City, Oklahoma, better known as Conoco. Conoco had two oil refineries in narrow gauge country. One was at Farmington, New Mexico and the other was in Denver, both originated shipments. Forty-six Conoco tank cars are known to have existed. They ran on the Rio Grande Southern, Denver and Rio Grande Western and on the Colorado and Southern. Specific cars were usually assigned to each road. Judging from various photos and movies, numbers 1, 5, 8, 10, 15, 22 and 35 were usual on the C&S; numbers 11, 21, 33 and 35 ran on the RGS (and of course on the D&RGW to get there); and numbers 1, 6, 7, 22, 23, 26, 32 and 35 were found on the D&RGW. Data on these cars came from R.B. Jackson, John C. Maxwell, Stanley Schwedler, Mal Ferrell and Richard E. Cooper; I thank them for sharing their information with us.

The CONX cars were a varied bunch. They had five styles of tanks, 3 styles of wood underframes, three styles of steel underframes and three styles of trucks. The tank on CONX #8, on the C&S in Denver in 1940, showed the tank built in November 1908, and rebuilt to narrow gauge in 1919. This rebuild was apparently done by the D&RG. CONX numbers 1 to 46 first appeared in the *Official Railway Equipment Register* in April 1925. Stan Schwedler reports seeing a photo of one of the cars overturned on Phantom Curve in April 1919. The reporting mark at the time was COLX 11. The same tank was still running on the D&RGW and RGS in the 1920's as CONX #11 but with a completely different underframe. Twenty of the cars were built at the Alamosa shops of the D&RGW as GATX numbers 301 to 320. They were built to the July 5th, 1926 specifications for 60,000 pound cars. These cars were originally painted black with white letters. According to the January 20th, 1927 Alamosa **VALLEY COURIER** fifteen more were built at the Alamosa shops for Conoco in 1927. In addition Conoco acquired 15 small 50,000 pound capacity standard gauge tanks and rebuilt them to narrow gauge. The cars became numbers 1-4 of 60,000 pound capacity, numbers 5 to 19 of 50,000 pound capacity and numbers 20 to 45 of 60,000 capacity. Continental Oil Company painting diagrams show that their tank cars were originally painted silver, with black reporting marks and dimensional data, and a large CONOCO in dark green. By the late 1930's all the tanks were painted black with white lettering. Not all of the tanks had the large white CONOCO on the side. CONX #1 and #11 were without the large CONOCO. Some cars had "Continental Oil Company" spelled out in small white letters along the top of the tank side. CONX #17 became D&RGW water car #0459 around 1939 and was used as the water car on the Chili Line. The underframe failed in the early 1960's and the tank and hand rails were mounted on D&RGW flat car #6217. The combination was renumbered #06217 as a water car. In 1972 the tattered remains of this car were mounted on a pedestal to replace the Needleton water tank on the Silverton Branch. Stan Schwedler found the old lettering under the peeling paint. The "Continental Oil Company" could be seen in letters 21 inches tall. A smaller set of 6.5 inch letters spelling out "CONTINENTAL OIL COMPANY" was found under the larger letters. Stan also reported a photo taken in the early 1930's in the Durango yard that showed what appeared to be CONX #23 with "CONTINENTAL OIL CO." spelled out on the side, but without the "THE" seen in the largest lettering of #06217-CONX #17. Stan also found another tank car body in Alamosa being used as an oil storage tank. He could not find the CONX number. He did find that the oldest lettering was POLARINE GASOLINE. The POLARINE was in large fancy script and GASOLINE was in 9 inch block letters. Above that he found the later 16.5 inch CONOCO block lettering, off-center on the side. The lettering was white, outlined in a darker color. The opposite side of the tank had the remains of some lettering reading in part "THE PERFECT . . . ." "FUEL OIL" was on one end of the tank in smaller red letters. The tank data on the side of the tank read "Tank Tested 5-4-23, Pressure 60 lbs, at Denver, Colo. by C&S Ry." The tank was the same size as CONX #17 (D&RGW #06217) and may have been CONX #14 or #15.

By April 1943 there were 35 cars (numbers 5 to 40) still on the roster. All were gone by October 1945. Bruce Blalock wrote CONOCO for information on the lettering and was told that all the diagrams and drawings were shipped with the tank cars to Mexico during World War II. Photos of *Nacional de Mexico* narrow gauge trains taken into the 1960's show tank cars that matched the CONOCO cars.

Details of these cars can be found in Maxwell's plans T-1, T-2, T-5, T-6, and D-63. CONX #1 had a 29 foot 2 inch tank, 6 foot 1 inch in diameter, with an 8 foot wide steel underframe 32 feet 3 inches long. It also had a special 4 foot 6 inch wheelbase archbar truck. The car was built in 1925. CONX #20 was similar. Both were GATX cars. Numbers 27, 29, 32, 33, 35, 36 and 38 had higher, wide underframes with the running boards raised on blocks to meet the minimum distance required to the handrails by the ICC. According to John Maxwell, numbers 20, 43 and 44 were built to the GATX specifications and had 6500 gallon tanks. CONX #5 had a short fat tank 25 feet 6 inches long and 6 feet 5 inches in diameter. It was built before 1895 and was mounted on a wood frame 30 feet long with 4-foot wheelbase archbar trucks.

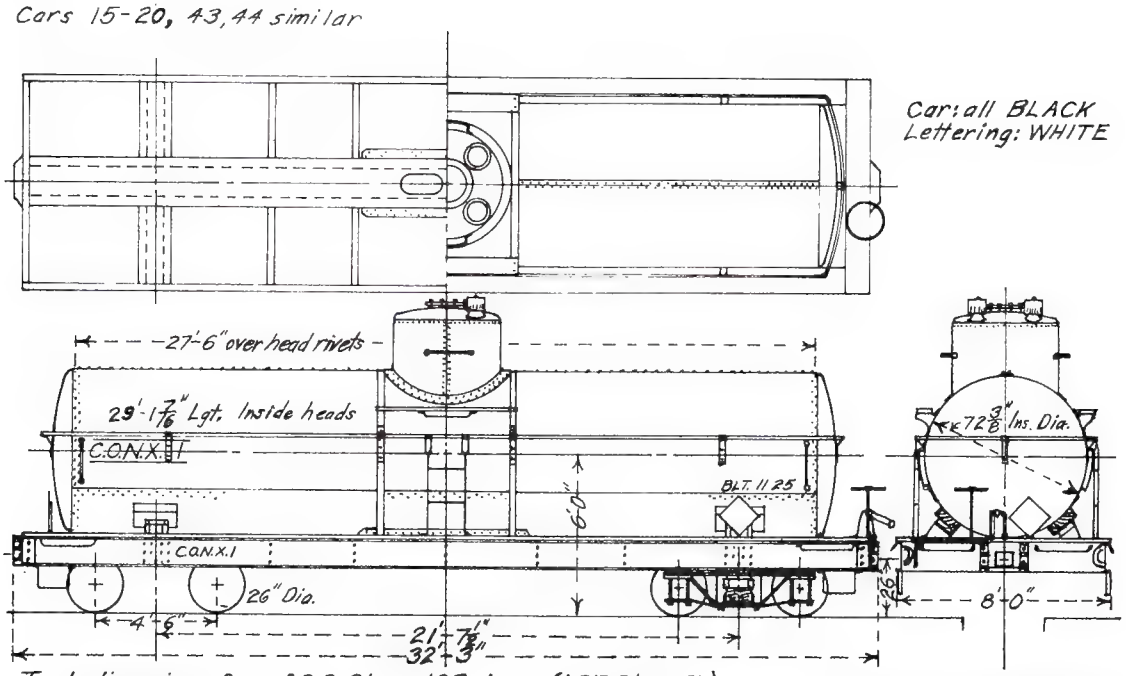
CONX #8 had a tank 26 feet 6 inches long and 6 feet 5 inches in diameter. It was built in November 1900. Number 8 was mounted on a 27 foot long narrow frame steel underframe built in August 1918. She ran on 4 foot 8 inch wheelbase archbar trucks. CONX #10 and #11 were assembled before 1919 and had 29 foot 6 inch tanks 6 feet ⅞ inches in diameter and were mounted on a narrow 32 foot long underframe sitting on 4 foot 8 inch archbar trucks.

CONX #15 is the subject of an apocryphal tale. Supposedly the car was wrecked on the D&RGW and Alamosa had to build a new underframe for it. The old C&S flat it had been on was salvaged by the shop and rebuilt into the infamous D&RGW #06299 "trash gon" of the Alamosa shops. This strange mixture of C&S and D&RGW scrap is available in kit form from Tomalco in all scales. CONX #15 was still on the C&S at the end of operations in 1943 and presumably went to Mexico on its newer underframe.

Dick Cooper reports that so far as he can tell the first oil train on the RGS ran from Durango to Ridgeway starting at 10:45 p.m. August 16, 1924 and reaching Ridgeway at 8:40 p.m. the next day. Fifty-two such trains ran in 1924 and another 24 in January and February of 1925. By 1929 heavy oil traffic had stopped. These oil trains ran from 5 to 18 cars but 10 cars were average. The first train with 13 loads needed two road locomotives and one or two helpers to pull it depending on the grade.

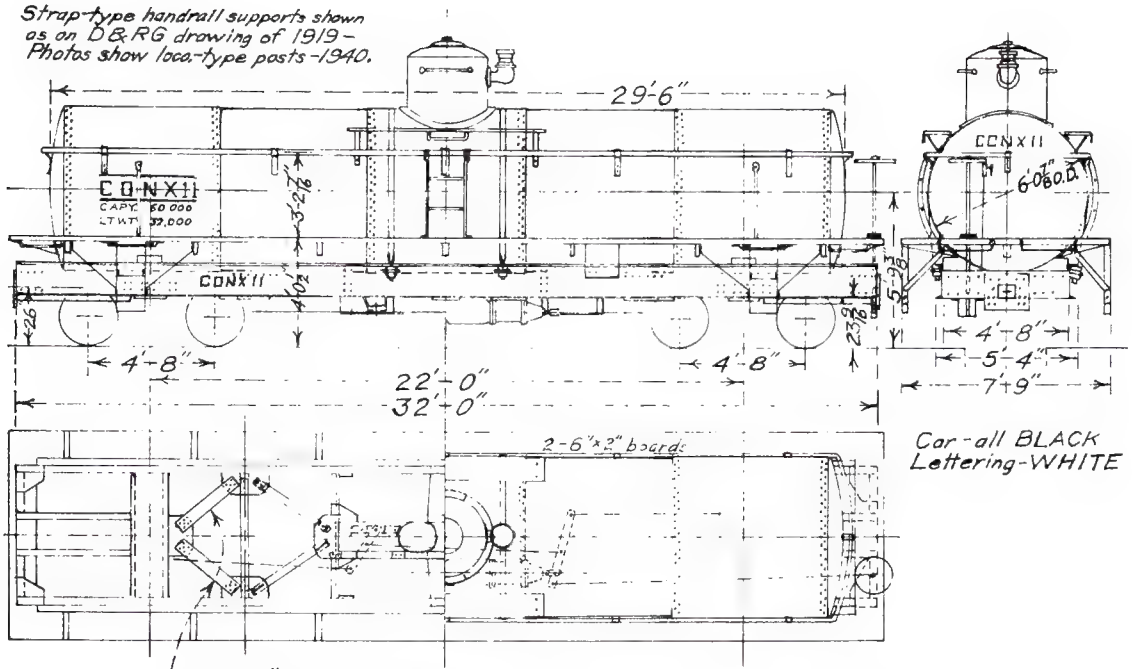
CONX 1

3.5mm = 1 foot



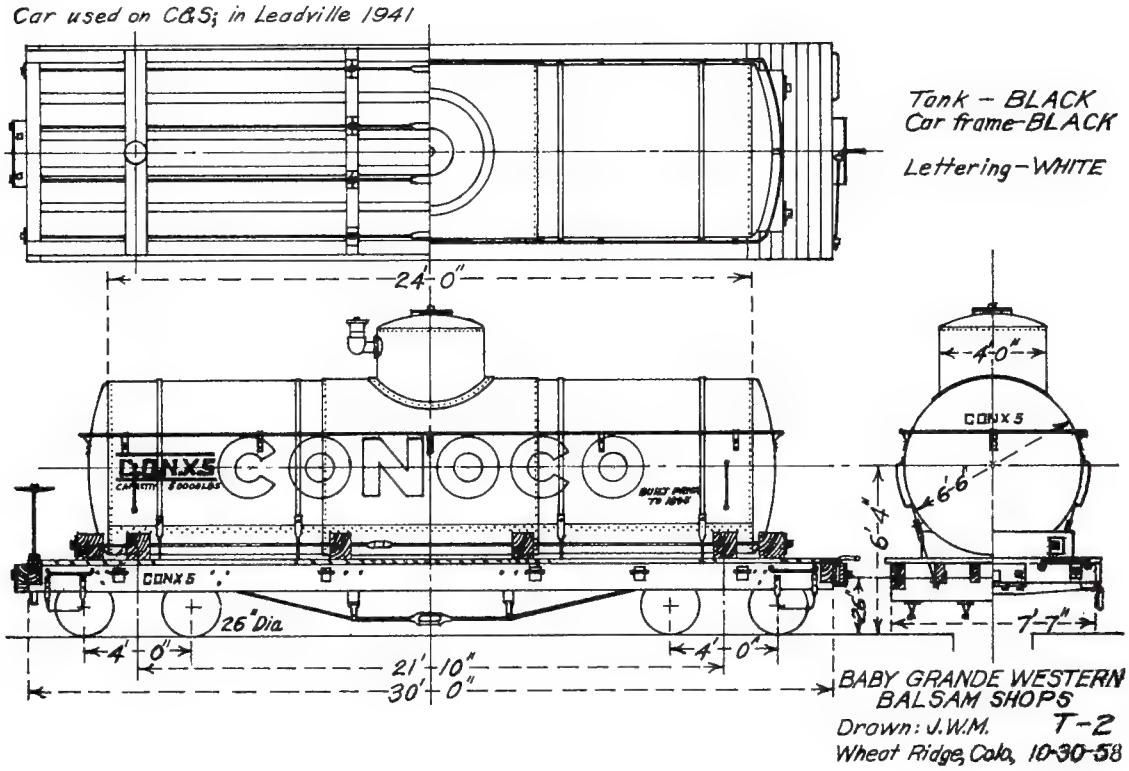
CONX 10 & 11

3.5mm = 1 foot



CONX 5

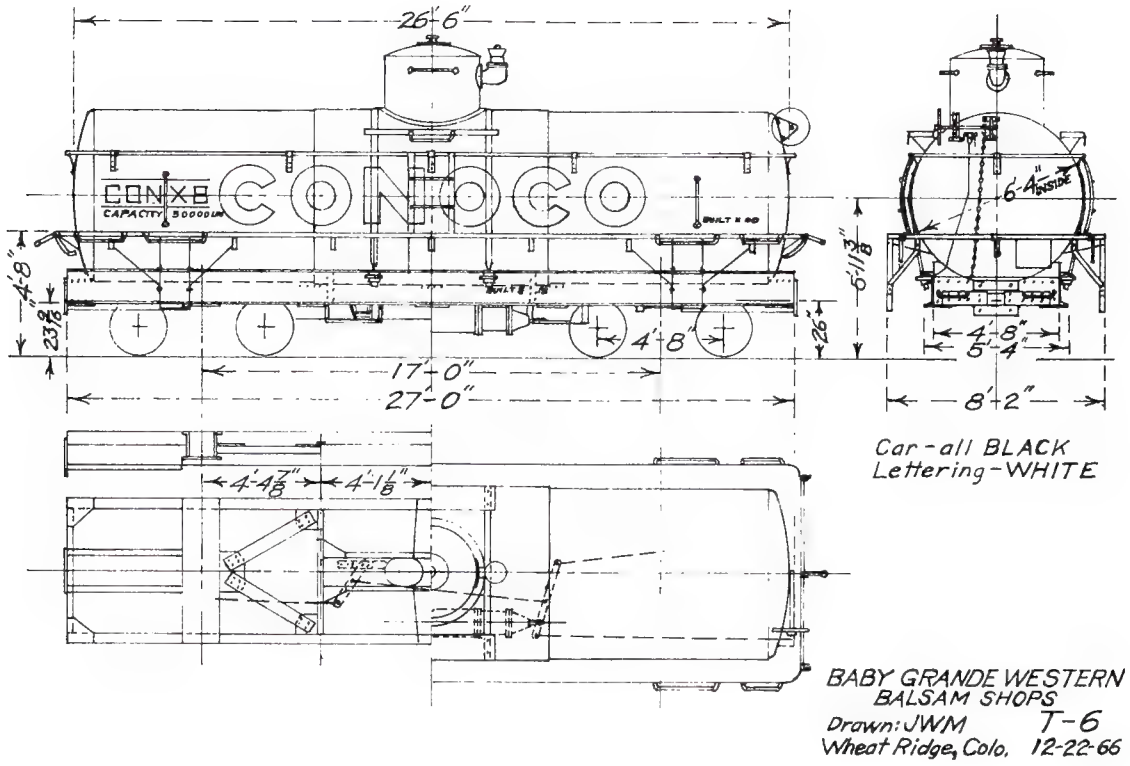
3.5mm = 1 foot



The most often modeled CONOCO tank car, #5. The tank was built prior to 1895 but the flat car dates from a much later period. John Maxwell wrote that the tank was taken from a standard gauge car and placed on a narrow gauge flat car some time in the 1920's. He reports that the earliest listed CONOCO tank car in the *Railroad Equipment Register* is April 1925. He further mentions that while some of the drawings are dated 1919 no owner is listed at that date. In 1925 the older cars were lettered for CONX, COLX and the other CONOCO tank lines. In 1931 they were all lettered for CONX only. The tank on #5 was painted black with white lettering. John Maxwell wrote that the underframe color was very similar to Scalecoat's Red Oxide. *Photo from the collection of Mallory Hope Ferrell.*

CONX 8

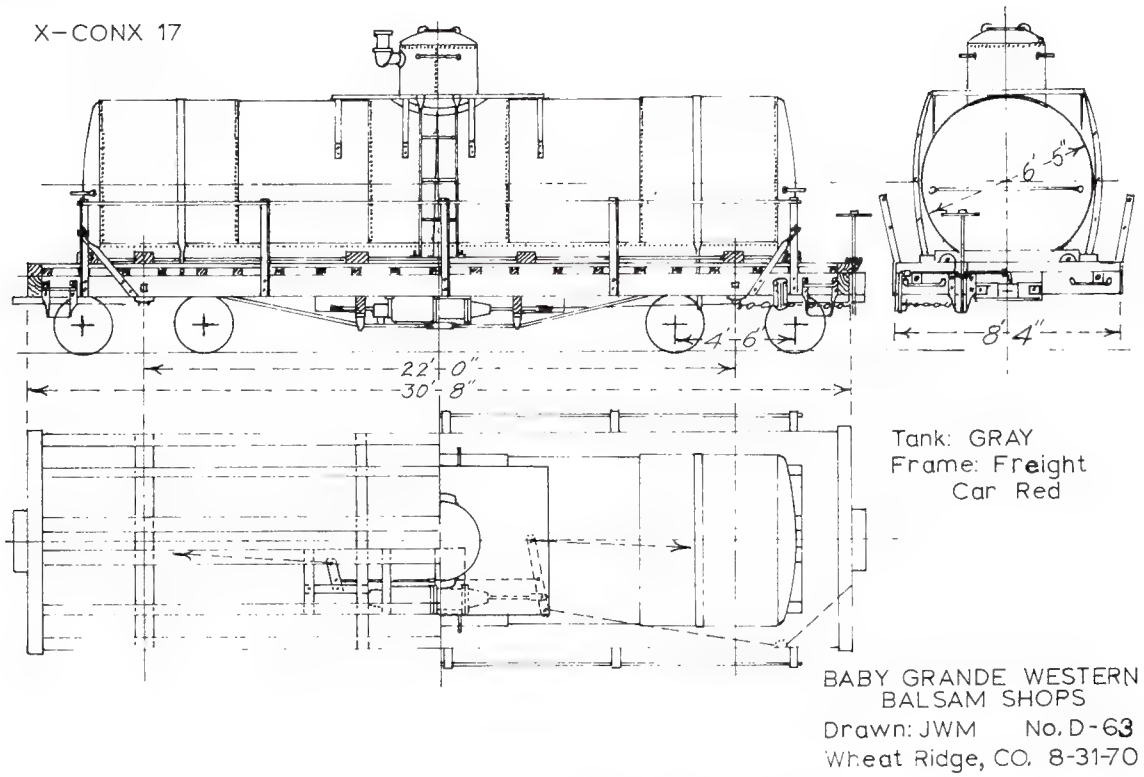
3.5mm = 1 foot



CONX #8 on the Colorado and Southern at the 16th Street yard in Denver, Colorado on May 30, 1940. Number 8 was the only tank car of this size to be photographed. She carried gasoline once a week to an Idaho Springs distributor up to the end of service in May 1941. *Photo by John W. Maxwell.*

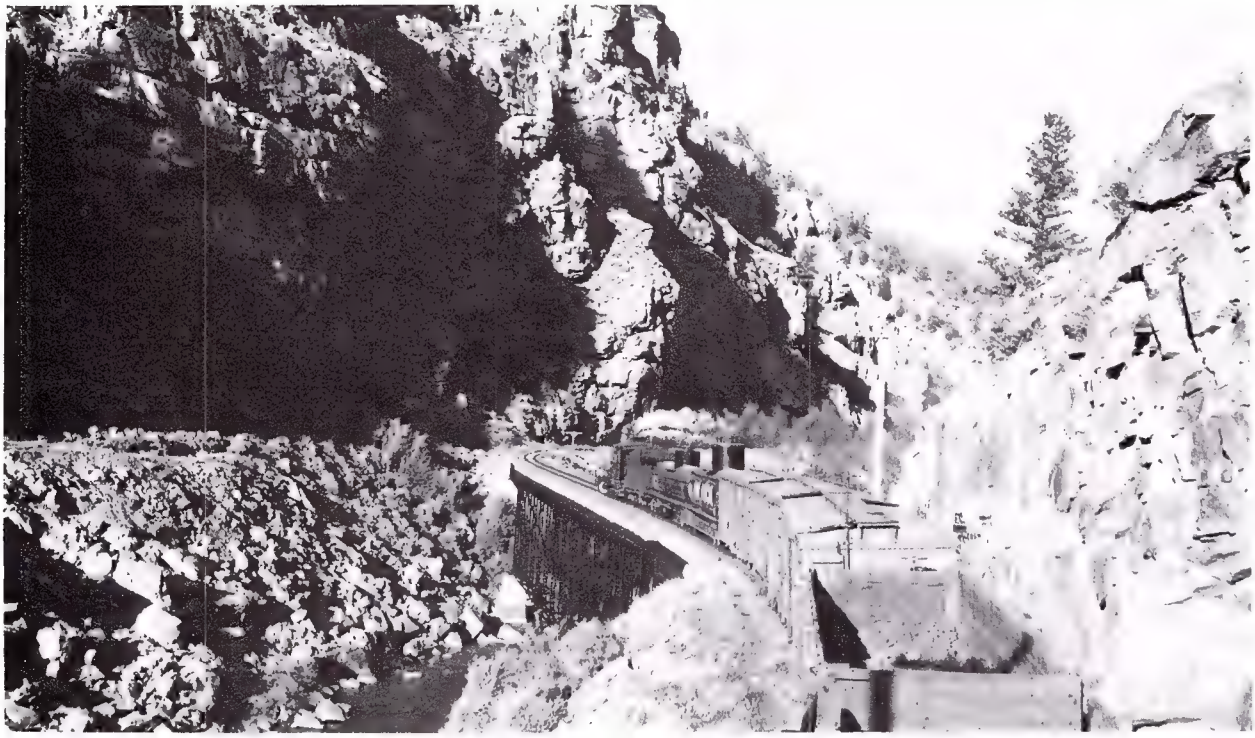
D&RGW WATER CAR NO. 0459

3.5mm = 1 foot



This much traveled tank started life as CONX #17. It became D&RGW water car #0459. In the 1960's the tank and handrails were mounted on D&RGW flat car #6217. This combination became water car #06217. In 1972 the tank was mounted on a pedestal and became the Needleton water tank on the Silverton Branch. *Photo collection of Robert Sloan.*

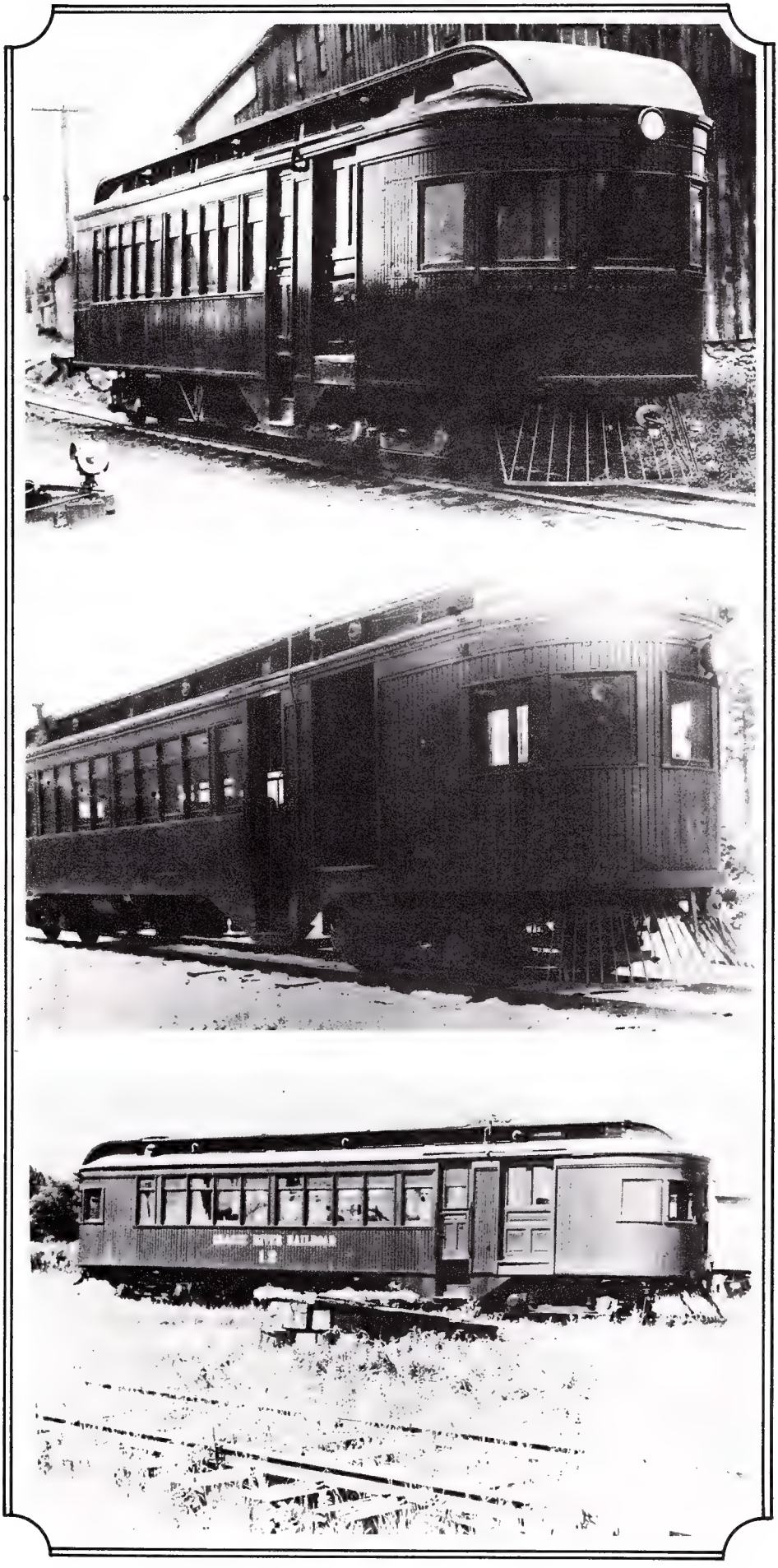
Colorado and Southern #69 setting out Idaho Springs cars at Forks Creek on April 10, 1941. Notice CONOCO #8. These cars were set out because C&S #1 and two cars had to be taken to Black Hawk on this trip. Normal operation at this date was for the run up to Idaho Springs first and then to Black Hawk. *Photo by John W. Maxwell.*



Rio Grande #361 headed east on the Crystal Creek Bridge. She is followed by TCX tank #77 and CONX 32. The photo was taken on June 6, 1940. Number 361 was on the return trip of a "Cimarron Turn" and had two CONOCO, one TEXACO 2-dome, and a number of UTLX tanks on the westbound run. *Photo by John W. Maxwell.*

The LANCASTER OXFORD & SOUTHERN RAILROAD MOTOR CAR

by Benjamin F.G. Kline, Jr.



Top left: The Lancaster Oxford & Southern motor car as originally built in a photo taken soon after its completion. The building in the background is Weigal's warehouse. It existed prior to the Lancaster Oxford and Southern Railroad and still exists today. *Photo collection of Benjamin F.G. Kline, Jr.*

Center left: The LO&S railcar in 1919, soon after it was received at Conifer, New York by the Grasse River Railroad. The radiator is now evident above the rounded end of the car. This radiator was installed while the car was on the Lancaster Oxford and Southern as an attempt to solve its cooling problems. *Photo collection of Benjamin F.G. Kline, Jr.*

Bottom left: This later day photo of the LO&S railcar was taken on the Grasse River Railroad and shows the center front window reduced in size with an opening cut below it for a radiator. The color was light green. The numbering and lettering is as it was when the car was received by the Strasburg Railroad. *Photo collection of Benjamin F.G. Kline, Jr.*

The rehabilitation and repair of this unusual car by the shops of the Strasburg Railroad has produced a great deal of interest concerning its past history. This project is being completed for the National Park Service to use in the Lowell National Historical Park at Lowell, Massachusetts. It is being used to transport visitors through the park. It is surprising that the car survived in almost its original condition and its history is an interesting story.

The car's origin and age are both very much in question because of the method of its construction. The railroad for which it was built was abandoned in 1919, and few records remain of its operation. However, it is known that the center section of this car is from one of several second-hand passenger cars acquired from either a West Virginia narrow gauge railroad in 1891, or from a New York state narrow gauge railroad in 1905. The second source is probably correct.

The construction of the motor car was the idea of conductor J. Clinton Gorsuch as a possible solution to a light passenger and traffic pattern on the Quarryville branch of the Lancaster, Oxford and Southern. The full story is best told by quoting from a 1959 letter from the builder of the car, Lawrence Kirk:

"The idea of starting the car belongs to J. Clinton Gorsuch. Several of the directors of the railroad were out to dinner and were discussing means of cheaper transportation on the railroad. Clint brought up the idea that one of the better passenger cars could be converted into a gasoline powered, self-propelled passenger car. As I had a shop of my own at Havre-De-Grace, Maryland known as the Sanders Machine Shop, and as I was the only mechanical engineer present, Clint wanted to know if I could undertake the layout and construction of the car and the approximate cost.

They called a meeting of the directors on the railroad, and in the meantime, we looked over their passenger cars. We decided it would be impractical to use a car as it was, but could use a part of one. The car selected was a wide car for a narrow gauge railroad, and it was very prone to swaying on the poor track work. However, the center section could be used, and with new steel reinforced, wood-covered ends, it could provide a car suitable for the intended use. The project was approved with the cost set at between eight and nine thousand dollars.

The contract was approved in October of 1914, and we went to work on the drawings. As it was a close bid, and did not have a draftman, we hired a high school boy who was apt with his head, figures and fingers, and proceeded to work on the plans.

The base was laid out on eight inch channel beams, and as the two ends had to be built at Havre-De-Grace, then shipped to Oxford for assembly to the rest of the car, we decided to join these channel beams in the center using twenty-two feet of the old car. This gave us a car forty-four feet long. These beams were set on twenty-six inch centers which also provided a base for the engine and transmission. Outside of these two spaced at twenty inches, were two ten foot, eight inch channel beams. The ends were formed from eight inch channel beams bent on a four foot, eight inch radius extending back eight feet. This gave us the foundation for a good wind resisting structure.

The uprights were "T" irons supported by ¼ inch steel bands four inches wide above the windows going back to the baggage doors. Back of these doors, we built a double steel partition sixteen inches deep. This held the gasoline and water tanks, with one pair on each side of the center door. This door was steel lined and also gave us a fire proof barrier between the engine room and the passenger section of the car. Behind this partition was a drop step for ground level loading, and a drop door for platform level loading.

For assembly, the center section was prepared and blocked at Oxford. The completed ends were shipped from Havre-De-Grace to Oxford, and placed on a flat car, blocked to the proper height, and lined up. Two hydraulic jacks were braced on the flat car and forced the connection onto the center. This fit was well calculated and the sections joined without a problem. They were then drilled and riveted together.

After this end was completed, the whole was taken to the turntable and reversed. Then the rear section of the car was moved into position and secured in the same manner. This end contained the smoking section, toilet and rear ten feet of the car. The longitudinal channel beams were then riveted together with 18 inch gussets and made a very rigid car.

The engine was a Buffalo Marine engine that developed ninety horsepower at 900 rpm and had been placed on the frame previous to assembly of the sections. As the car was assembled, the trucks were run under the car. The front truck was especially built using parts of the old passenger trucks, and the drive was the basis for our patents. This drive was through the king pin bearings. The front truck was mounted on a full swivel bearing. The lower transmission was bolted to the truck frame and also connected to both axles by a chain drive. The truck king pin also contained an internal ring gear between the upper and lower transmissions and acted both as an universal joint and drive.

The water cooling was provided by two radiators under the center of the car. (This location was the source of many problems), and one radiator on the roof of the car in front. This was thought to be adequate without a fan. The two fifty gallon water tanks held all of the water inside the car when it was not in circulation. The completed car weighed twenty tons and could be moved by one man with good purchase to push against.

The car seated forty-six passengers and had room for two tons of freight. It could also hold twenty cans of milk along with any freight collected along the line. The original run was about nineteen miles, mostly over grades and curves, with one grade out of Quarryville a little over four percent. There were fifteen scheduled stops, and the maximum speed was to be forty-five miles per hour.

There were many problems as this was the first venture of its type, but these were overcome and the incomplete car made its first run on June 4, 1915. This was necessary because one of the steam engines broke down on the Fairmount hill. The seats were not installed when the car was placed in service, but were installed two at a time during the stop at Oxford."

The car is unusual and as mentioned, the age of the center section is uncertain. The trucks were the regular narrow gauge passenger trucks. The front truck was rebuilt, replacing the wood frame members replaced with metal. The only change to the rear truck was the installation of roller bearings. The bearings on both trucks were roller bearings, and this is probably one of the first applications of roller bearings to railroad equipment.

The car was not entirely successful on the Lancaster, Oxford and Southern Railroad. The gearing installed produced too high a speed for the track conditions. Its large size on narrow gauge trucks made it unstable at speed. Water cooling was another problem and it was not solved while it was on the railroad.

The Lancaster, Oxford and Southern Railroad abandoned the Quarryville branch in April of 1917, and the car became surplus. It was sold in 1918 to the Grasse River Railroad at Conifer, New York. It was taken there and its trucks were widened to standard gauge before it was placed in service. Additional water cooling was installed.

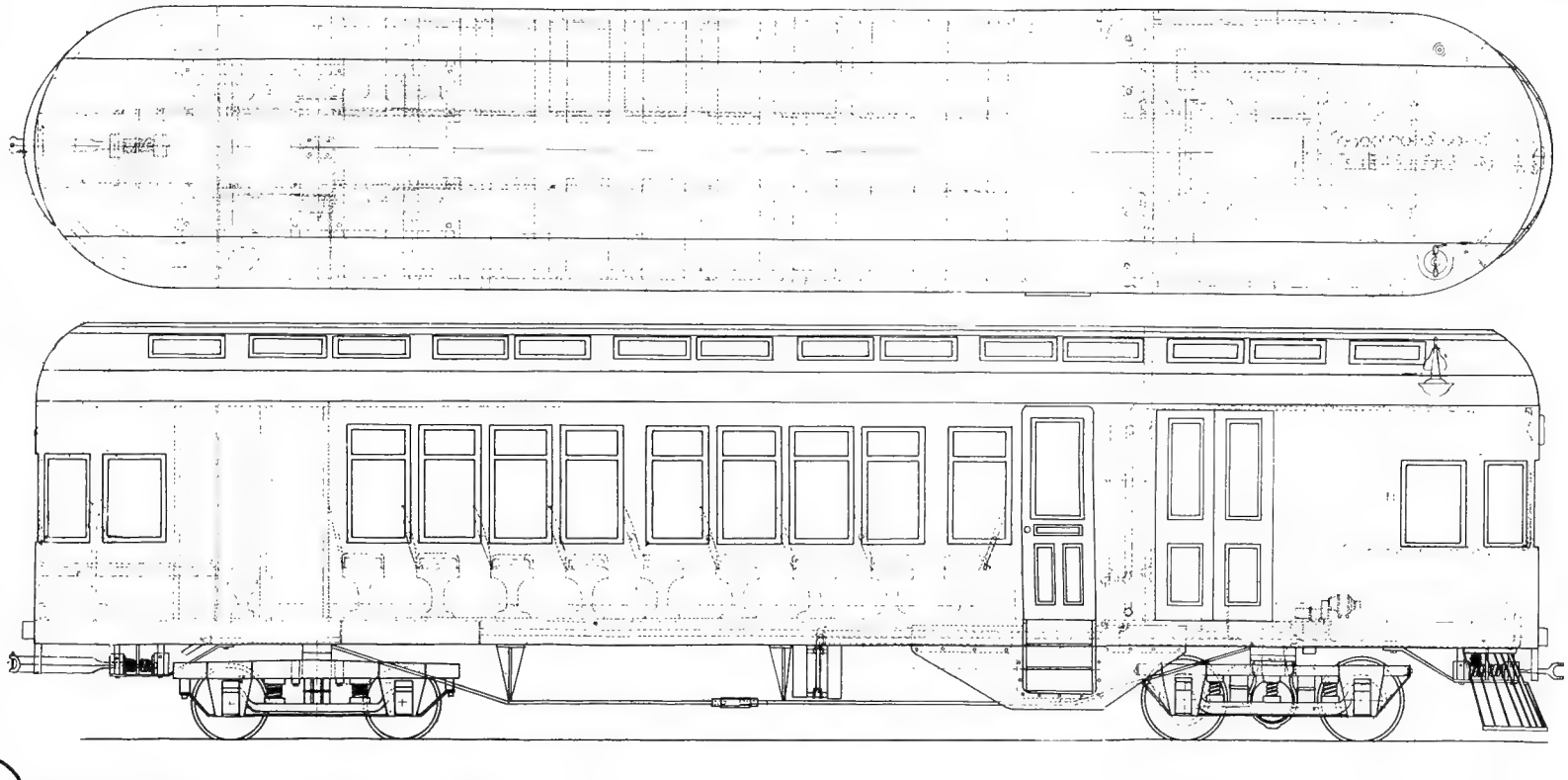
How long it remained in service is uncertain, but it was eventually replaced by a newer rail car. Then it was stored. In the 1950's, the Grasse River Railroad was closed along with its parent organization, the Emporium Forestry Company. The equipment was put up for sale, and much of it was disposed of, but somehow, the motor car survived. The car's existence and origin was a surprise to the members of the Lancaster Oxford and Southern Railroad and they decided to buy the car. It was through the efforts of Mr. Winston Gottschalk that the motor car was purchased, and returned to the Strasburg Railroad in 1960. The car is still owned by the SRR at this writing.

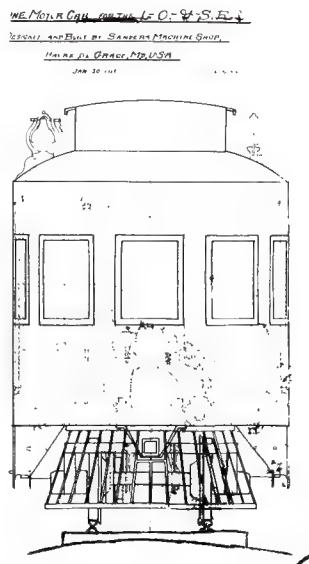
This railroad motor car appears very

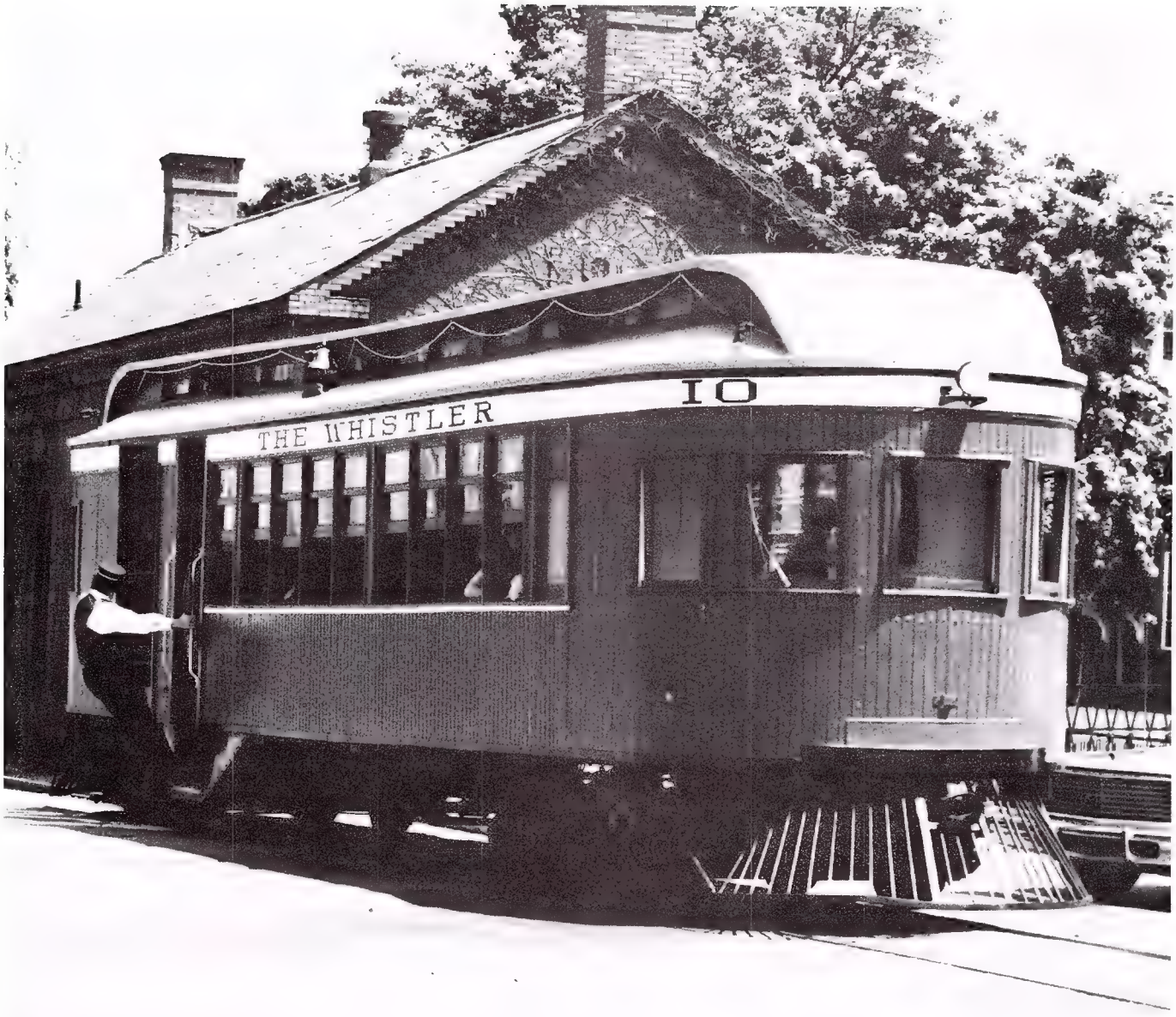
The LO&S railcar at work. Passengers loading at the Fairmount Station. The car was lettered "Lancaster Oxford and Southern Railroad" on the letterboard above the windows. "Motor Car No. 1" was lettered forward of the baggage door. The rear of the car had the initials "L.O. & S. RR" on the letterboard and "Motor Car Service" beneath the center window. *Photo collection of Benjamin F.G. Kline, Jr.*

Lancaster Oxford & Southern Motor Car

This is probably the preliminary drawing for the construction of this motor car. There are differences between this plan and the car as constructed. The drawing shows truss rods not on the car as well as one less window on each side than the car. *Drawing, collection of Benjamin F.G. Kline, Jr.*







"The Whistler" is on a three year lease from the Strasburg Railroad. It is used to transport visitors throughout the Lowell National Historical Park. *Photo from the Lowell National Historical Park.*

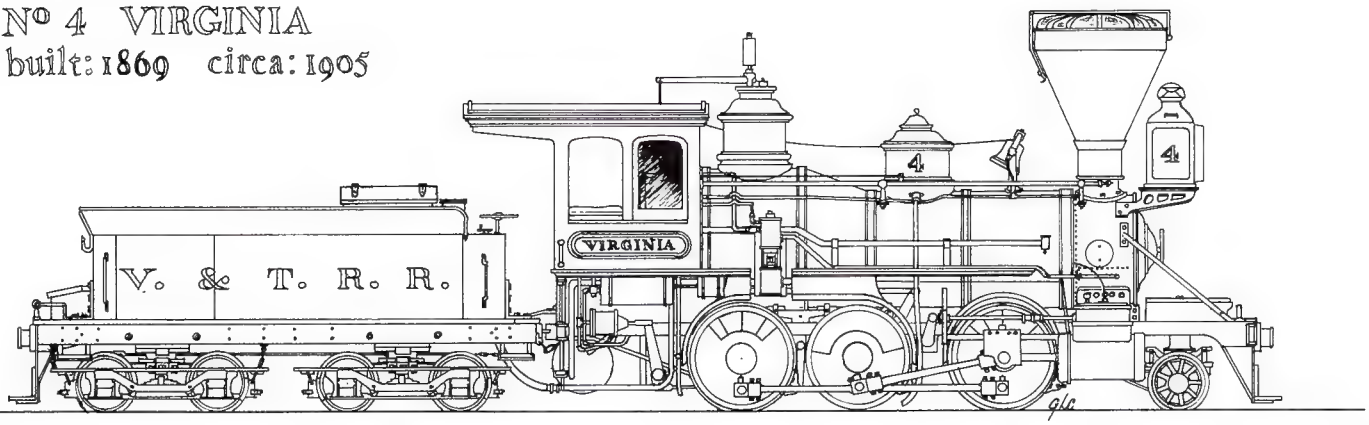
much like it did when it was built. It has had a variety of motors but the mechanical drive remains much as it was when it was installed. The car was vastly underpowered, and while it was used for an occasional trip by officers of the company, it was never placed in regular service. They did maintain it in appearance and operational state.

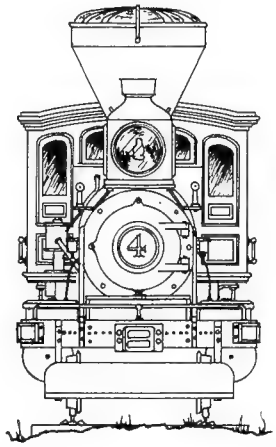
Then in 1974, the car was leased by the Strasburg Railroad to the Wolfeboro Railroad. This company had been organized by a former Strasburg Railroad officer who traveled to New Hampshire to set up a similar operation as the Strasburg. Mr. Hallock was looking for a light self-propelled piece of passenger equipment and with modification, the Lancaster Oxford and Southern motor car would serve his purpose. At Wolfeboro, a new motor was installed, appliances brought into conformity with I.C.C. regulations, and it was used for several years until its physical condition and age no longer allowed its use. It was then replaced with more modern equipment.

The motor car was returned to Strasburg in the spring of 1979, where it remained idle until the present restoration project was started. At the completion of this program, it will be in the best mechanical and appearance condition possible. It still has the original seats in the passenger compartment with the cane coverings on the seats. The car was originally painted Tuscan Red, then painted and maintained in a light green color until its lease to the Wolfeboro Railroad. There it was painted red and it remains that color to this date.

There are several photographs and an excellent set of drawings of this car in the January, 1977, issue of the **GAZETTE** (out of print). These depict the car as it was in service on the Wolfeboro Railroad. Comparing these to those in this article shows how little the car has changed over its 65 years existence. There are several errors in the data on the 1977 drawing, e.g. the date of construction, but the dimensional data is correct. The present reconstruction will not alter the car's overall appearance.

Nº 4 VIRGINIA
built: 1869 circa: 1905





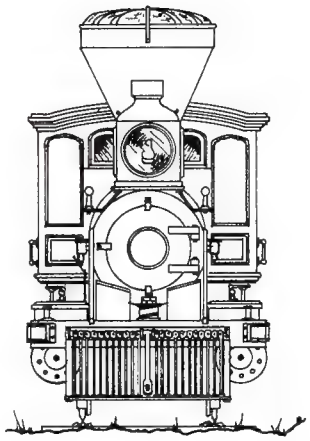
VIRGINIA & TRUCKEE RAILROAD

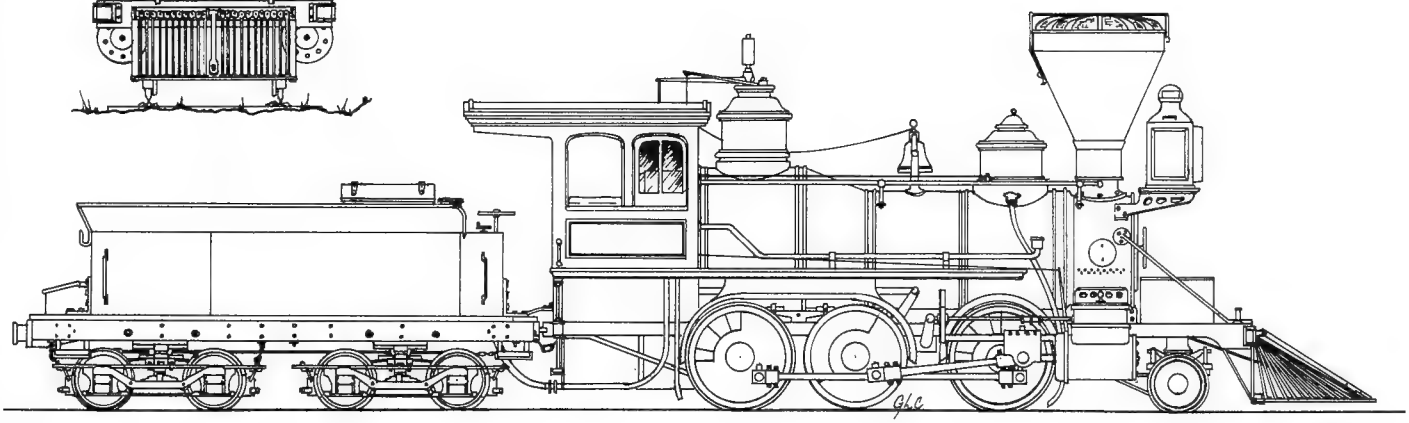
Baldwin 2-6-0 Locomotives

1869 to 1873

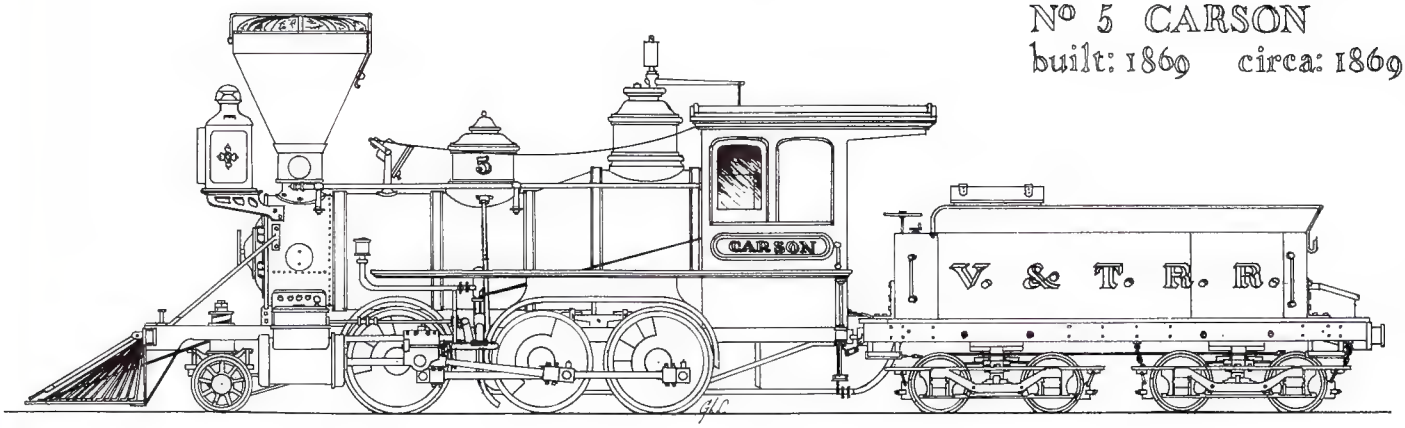
Drawn by Gary Caviglia

© Copyright 1980 G. Caviglia

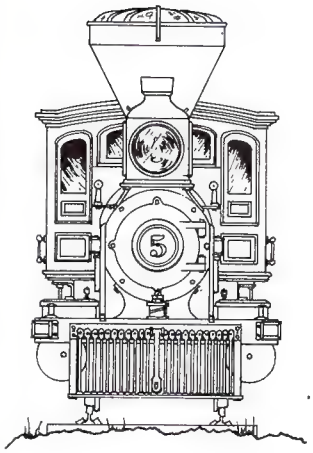




Nº 8 HUMBOLDT
built: 1870 circa: 1882



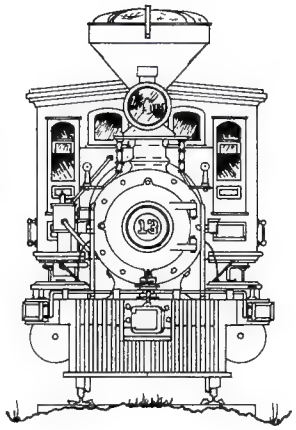
Nº 5 CARSON
built: 1869 circa: 1869

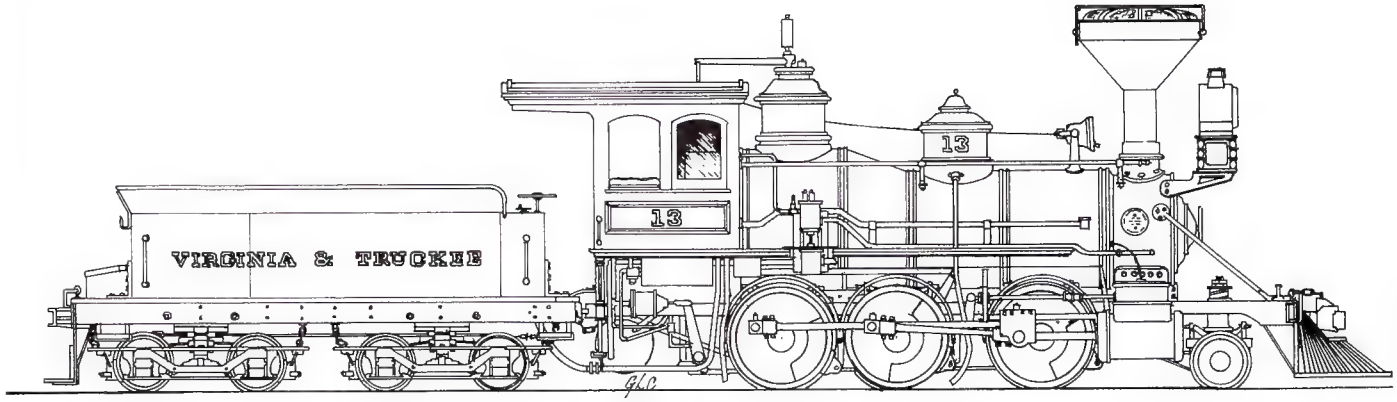


Scale

12 0 5 10 15

3.5mm = 1 foot





Nº 13 EMPIRE
built: 1873 circa: 1904

The MODELMAKERS NOTEBOOK

by AL ARMITAGE

A Small Cargo Schooner for Your Railroad Scene Part 1

As readers of this column have probably noticed one of my favorite subjects is the environment around my trains, what I sometimes call "scenicing". I especially like to include other forms of transportation. That's how I came to do this sailing schooner. When I needed some "scenery" for a logging scene I was planning, I naturally thought of the small coasting schooners I had seen as a boy in New England. This model is a good small alternative to the steam schooner in the May/June 1980 **GAZETTE**; in quarter-inch scale it measures just 22 inches from boom to bowsprit tip.

The plans have complete details for both hull and rigging. You can get the drawings photostated up to the scale you need for your model, using my scale in feet as a guide. If you just want your model to be background "scenery" you can leave out much of the detailing. Don't eliminate the blocks and deadeyes though, they would be obviously absent. I put in all the detail I could.

There are several ways of doing the hull of a ship which is going to be part of a railroad scene. I planned to use real water in my scene so I wanted a full hull which would float. Most model railroads have "water" made of clear resin and need only a partial hull. I will discuss both types of hulls.

A floating hollow hull can be made by hollowing out the shaped wood to ⅛ to ¼ inch thickness, sealing and painting. It can also be made from paper-mache or fiberglass laminate if you are familiar with the techniques. I made my hull by vacuum forming it from styrene in two halves. I used a fairly large vacuum forming machine with a "split" pattern carved from wood (Fig. 1). The molds (Fig. 2) were made from casting plaster. Figure 3 shows the mold set up on the vacuum table. I used .125 inch styrene stock. I trimmed the joints, bonded the halves together, and added reinforcing strips inside the hull just below the deck line.

A partial hull for use in resin "water" can be carved from a solid block of wood. You can use the templates as described below but cut them off a little below the load water line (LWL on the plans). If you are pouring resin around the model leave a little more "bottom".

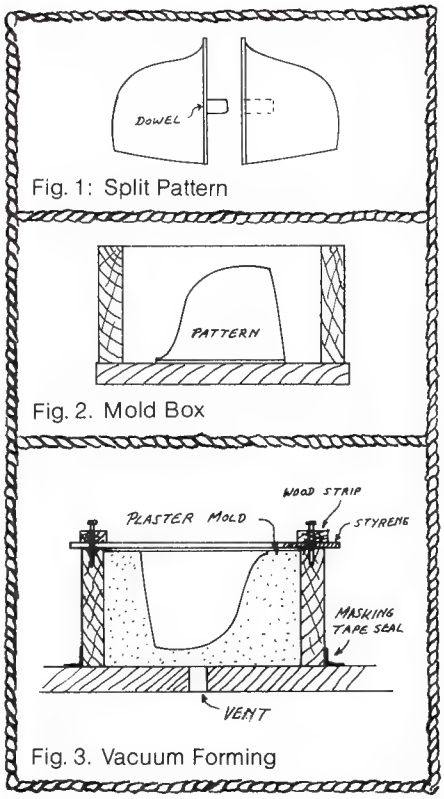


Fig. 1: Split Pattern

Fig. 2. Mold Box

Fig. 3. Vacuum Forming

Whether you use a full hull or a partial hull you will need to contour your hull. Use the traditional "bread and butter" system. Cut "lifts" to rough outline on a bandsaw and glue them together using clamps. Lifts are indicated on the hull contour diagram by Roman numerals. These "waterlines" combined with section lines on the "half-breadth" side are checkpoints for the hull contours. The lifts may be any thickness; I used ½ inch for quarter-inch scale. Make one of the glue joints with dark glue at the load water line. The hull contour drawing shows the shape of the hull at each of 16 "stations" spaced four feet apart. To make your templates trace each contour line on a separate sheet of stiff cardboard. You will have sixteen templates to match with the sixteen "stations" you should mark on your hull block after you have shaped your deck (sheer line). The bulwarks and rail are shown in place but they are added later and are not part of the hull carving.

With the hull held as in Figure 4 use a sharp wood gouge for rough shaping. Then use a wood rasp and progressively finer and finer grades of sandpaper until the hull is nice and smooth. Work carefully, going over the entire hull at each pass and using the templates frequently. You want "fair" curves in all directions – no humps, hollows or flat spots.

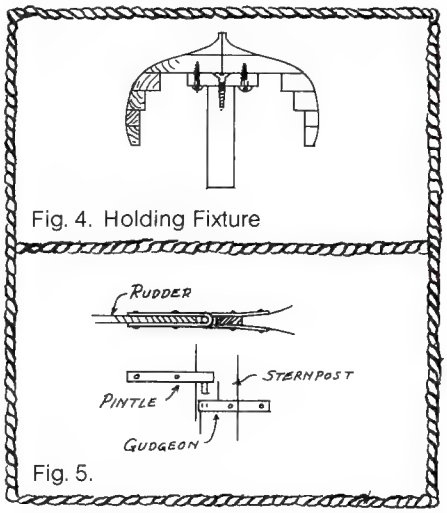


Fig. 4. Holding Fixture

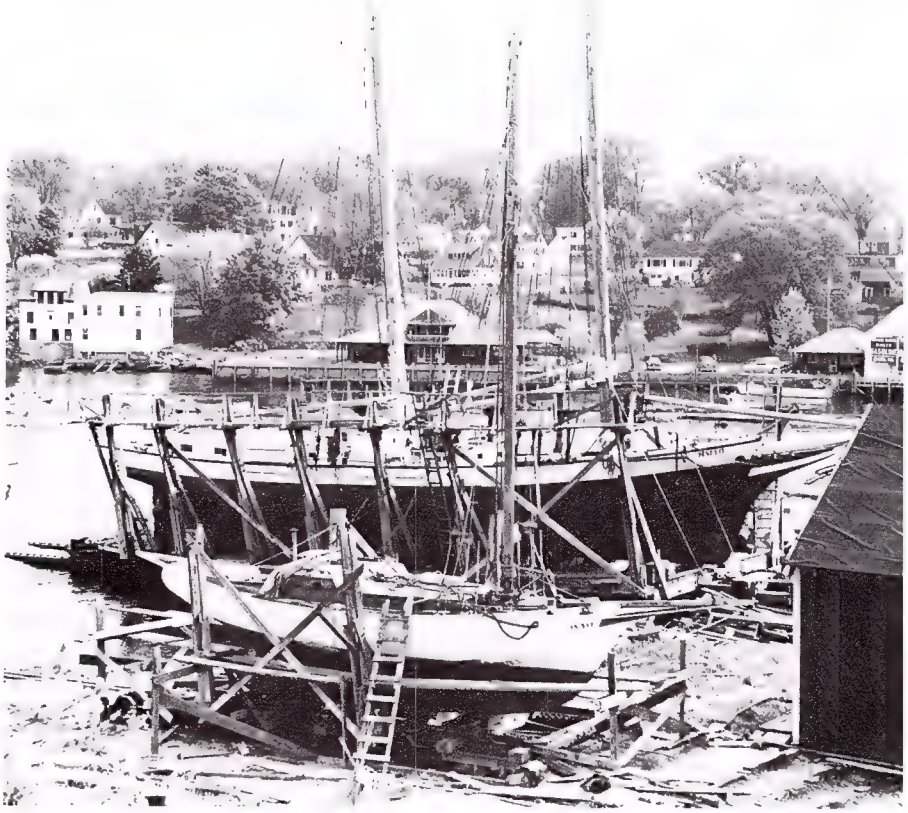
Fig. 5.

The stem, keel, and stempost are added after the carving of the hull is complete. If you are doing a full hull, you'll want to do the rudder as shown in Figure 5.

Now you are ready for the deck. The details of decking are different for hollow and solid models. With a solid model it's fairly easy to get the slight "camber" or curve shown in the sketches by careful shaping. A hollow model will have a deck made of thin wood or styrene and you will have to settle for a flat deck. Scribe planking on the deck and for a hollow model install deck braces in the hull. Don't put the braces right under the main hatch or mast holes.

Make the deck for a hollow model

The prototype, on which the model was based, up on the ways in Camden, Maine. This was a 65 foot vessel, slightly larger than my model.



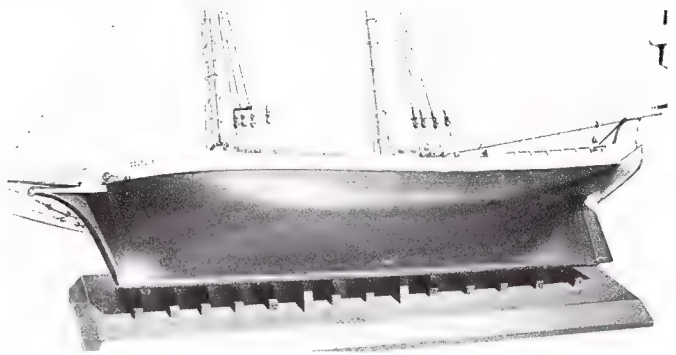
slightly oversize and cut out the hatch openings before mounting it. Also drill holes for the masts at the centerline fore and aft. Slightly oversize holes allow for adjustments later. After the deck is in place trim it to match the hull. Don't forget to put in the mast "steps", small blocks with holes to take the heel of the masts. Their location is critical because it determines the alignment of the masts.

Alignment of the masts in a solid hull is determined by the angle of the mast holes so drill carefully and make the holes slightly oversize. For both styles of hull you can use cardboard templates propped up behind the model to sight in the rake of the masts. You will need some sort of a cradle to hold the full hull level. From the bow, both masts must be perpendicular to the deck. The inboard profile shows the rake angles from the side: ½ degree for the fore mast and two degrees for the main mast. When you are positioning the "steps" in a hollow hull use dowels inserted through the deck holes down into the steps (as yet unglued) inside the hull. Tie the dowel firmly in place with a length of string running from its top around the bottom of the hull and up to the top again. Adjust until your angle is correct and then glue the "steps" in place.

Be sure to get your fittings from a ship model supplier; it takes too much time and effort to make them. Get linen thread for the rigging and some beeswax or parafin for weatherproofing it. I promise you'll be sorry if you use cotton string or thread; it responds to humidity and one day it's nice and taut and the next it's limp as a dishrag. Next issue I'll deal with the rest of the deck detail, masts, spars and rigging.

AL —o

The completed model at rest on its special stand.



The vessel has been "careened" in this photo to show the hull contours.

60 Ft. CARGO SCHOONER

Designed by A.B. Armitage, 1961

Outboard Profile & Rigging Plan

Parts List for Schooner Model*

24	Deadeyes	3/16" dia.
8	Deadeyes	5/32" dia.
20	Deadeyes	⅛" dia.
3	Blocks	3/16" Triple
3	Blocks	3/16" Double
6	Blocks	5/32" Double
10	Blocks	5/32" Single
6"	Chain	26 link
3"	Chain	12 link
4	Bitts	7/17"
2	Chocks	⅜"
4	Cleats	⅜"
20	Belaying pins	½"
4	Belaying pins	5/16"
30	Eyebolts (padeyes)	small
6	Ringbolts	small
2	Anchor	1½"
1	Steering wheel	½" rim dia.

Rigging cord

Black Jacquard linen	.020" dia.
Black Jacquard linen	.025" dia.
Natural hemp linen	.015" dia.
Natural hemp linen	.010" dia.
Black silk sewing thread	(for lashings)

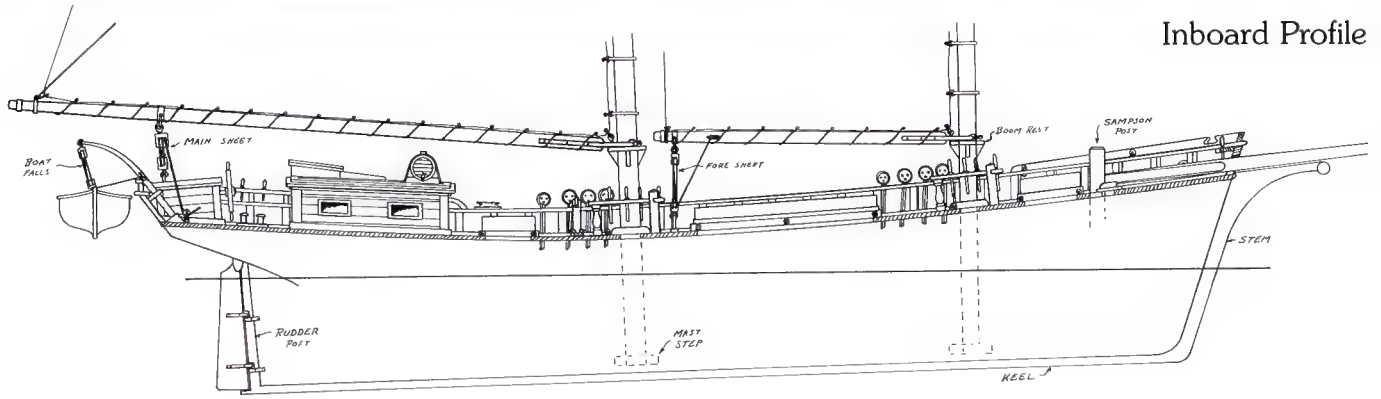
Some sources of parts:

Model Shipways Co.
39 West Fort Lee Road
Bogata, NJ 07603
Catalog: $1.50

Marine Model Co., Inc.
Dept. B
Halesite, L.I., NY 11743
Catalog: No price listed

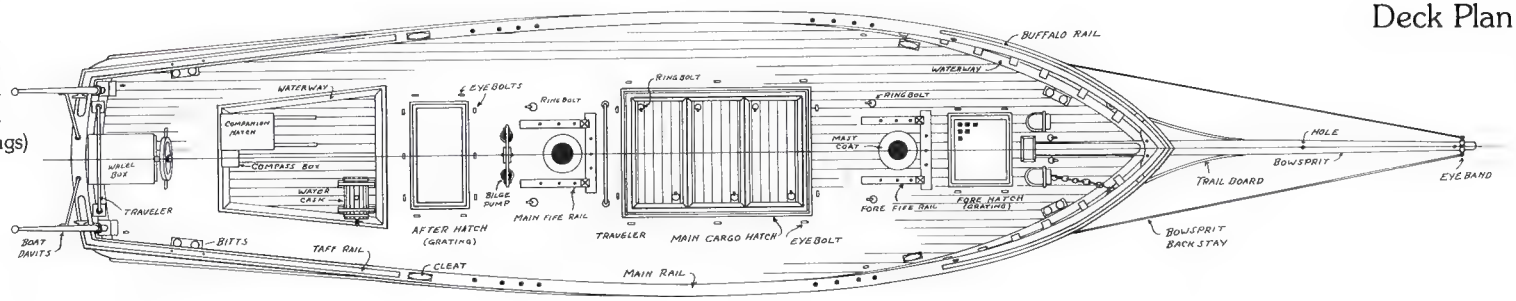
*These parts for a ¼ inch scale model. Adjust sizes for other scales.

Inboard Profile

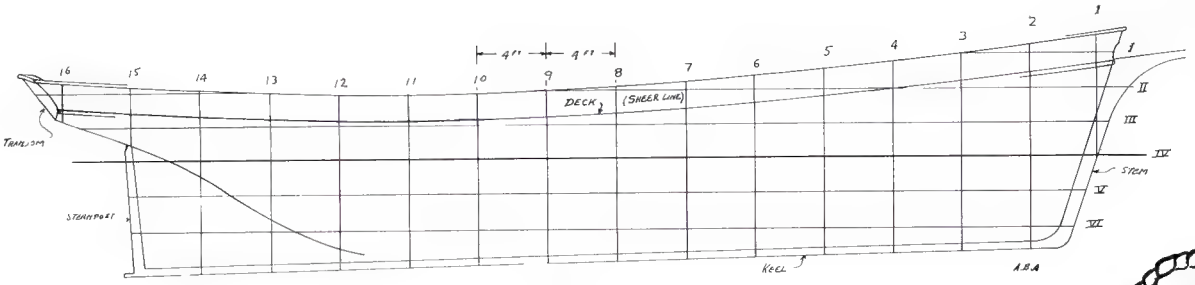


INBOARD PROFILE

Deck Plan

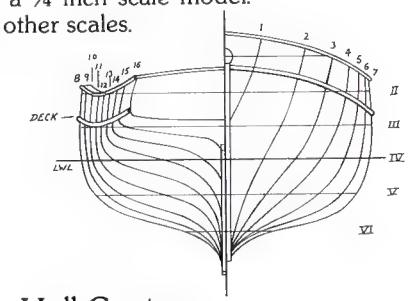


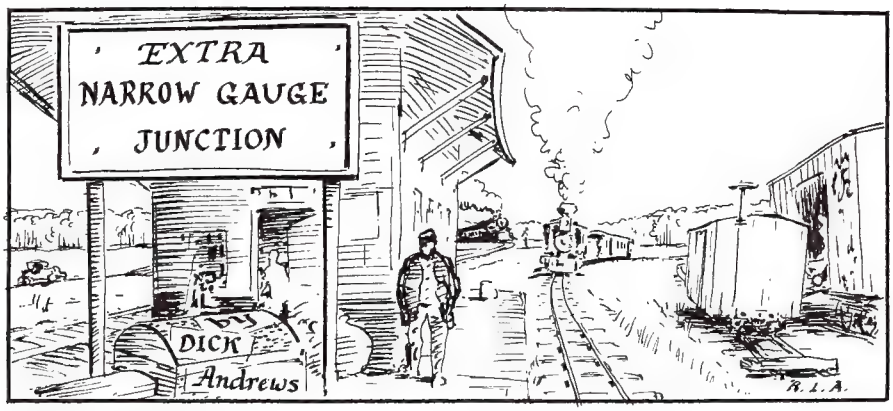
Hull Elevation



HULL ELEV

Hull Contours

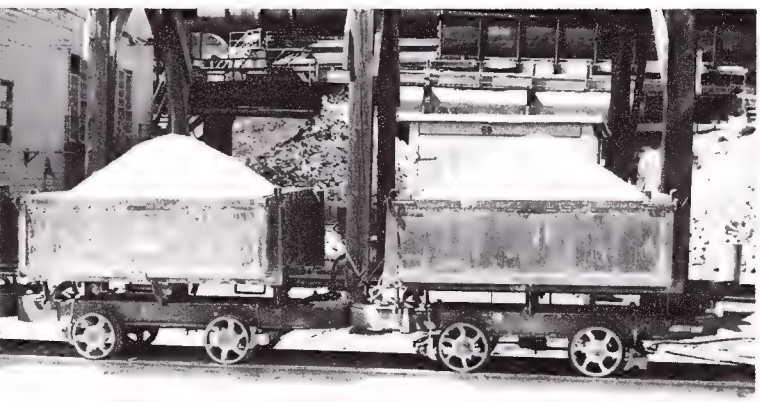




THE BRIDGTON & HARRISON AS I REMEMBER IT (PART 3)

by Dick Andrews

No two industrial tramways seem to be quite alike even if they are used in the same type of industrial process. John R. Cummings sent these photos of the extensive electrified three foot gauge tram line system at the Crown-Zellerbach plant at Camas, Washington. Here is a web of overhead catenary such as one would expect to find on the Pennsy's eastern lines, or the New Haven near New York. These photos show some interesting features. Note the double track line running up a ramp in the distance. The little "mule" locomotive is quite small, and its pantograph collector is well adapted to the back-and-forth moves it makes. The other photos show the buffers for pushing and couplings for pulling – which could not be simpler. A stout hook, bent back, and a short chain. Note the variety of equipment including short four-wheel side dump cars, flat cars with stake ends, and a heavy wooden gondola reminiscent of early cars on the Gilpin Tram in Colorado. John did not identify the materials being carried. Is any reader familiar with the processes at this plant and thus able to identify them? John notes that he asked at the office before entering the plant and this is always to be recommended. By the way, whenever you visit a real railroad stay away from the ends of the cars. They may get suddenly kicked by a locomotive from the other end. Also avoid stepping on rail heads when crossing the tracks. These scenes were shot quite a number of years ago so I don't know if the tram still exists. Details of the locomotives were given in **PACIFIC NEWS** in 1966 or 1967. This or a similar tram would make a splendid model. With two locomotives, 2-rail insulated and set electrically "opposite" on the tracks, it would be very easy to control them separately. You could have a real "dodge 'em" session switching tram cars



around the mill yard. I cannot think of a better start-off project for scratch-building than a simple and rough little industrial tram. Tram equipment ought to look rather battered and splotchy. And "free lance" is the name of the game.

I left our Bridgton & Harrison Railway campers' special just starting off from the Camp Wabunaki grounds at Hancock Pond, Maine. The little line ran right across the camp grounds by the lake, easing between tennis courts, and it was thus very handy for loading a special train of "cabin cars". The little girls are homeward bound after a summer's session with Miss Emily Welsh and her staff, and we are to meet a Maine Central train at the junction which will take them on to Portland and further.

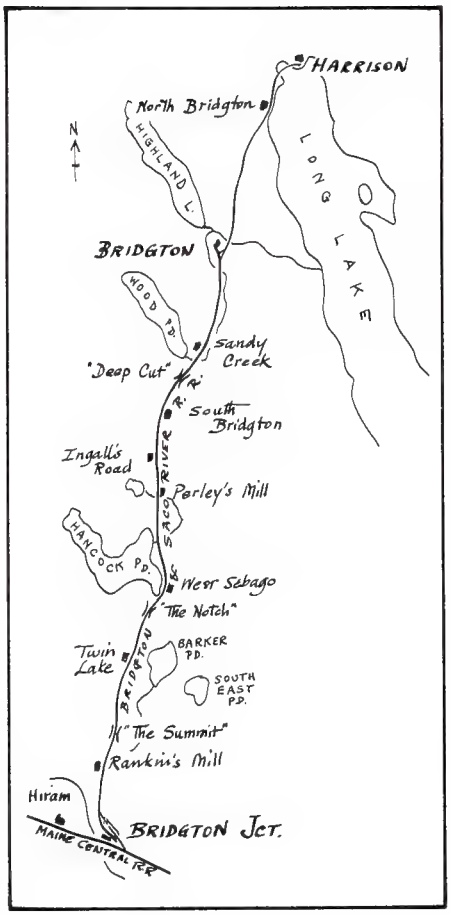
"Hancock Pond" or "lake" – which is it? Here is the real "way" of it. In New England in the old days, the folks tended to play things down somewhat. Most inland bodies of water were "ponds". Most bumps in the terrain were hills. One even referred to the "White Hills". Then in the 1890's "lake" and "mountain" seemed better p.r. then "pond" and "hill". Indian names became romantic. In our part of Maine, "Tom Pond" became "Keoka Lake" and "Stone Pond" became "Lake Kewaydin" and so it went – but Hancock Pond, by no means small, held onto its earlier name.

For sixty years the little Bridgton road dodged hills and ponds (or mountains and lakes) on its way down to meet the main line trains at Bridgton Junction. The secret of this little road – Bridgton-built and Bridgton-owned first and last – was that it carried the mails. The narrow gauge made mighty efforts to have its little trains at Bridgton Junction waiting across the board platform, to meet each main line train. The Bridgton "train" in later years might be only a rail bus with trailer but it was there. The mail from Bridgton town and surrounding villages was ready for the wide gauge RPO car, and the inbound mail was taken home.

Along with the mail, of course, came baggage, express, passengers and other items; but the mail was at the core of it. Today when the railroads do not generally move mail in this way, it is easy to forget how much it meant. It gave operations snap and zest and a real sense of "must" and "when". A home-town pike such as the Bridgton line might fudge a bit about time homebound, but that junction connection *had to be made.* There was the action – and many little dramas were played when time got short. Hancock Pond had a water tank. If time was short, could they "run" the tank stop? Everett Brown told me how as a young engineer, he had stopped at Hancock Pond and a crusty old conductor had come up to take a peep at the water level in the locomotive's tank. Everett was still nettled about that years later.

So here we go, getting a run for the grade up to the "Notch" – a rock cut and the high point on the line. From there it is down grade through some lonely woodland and past a couple of ponds (lakes) and an abandoned station called "Twin Lakes". Over another summit and now we drop steadily down along Hancock Brook into the Saco River valley. We cross the face of a hill and see the roofs of Hiram village below us.

Everett has her pinched down now and we blow for a road crossing. Past a house and across the road – and we are entering Bridgton Junction. This little spot where the narrow and the broad gauges met for sixty years was simply a cow pasture by the banks of the Saco River. No doubt the



small gauge did not enter Hiram to reach the broad gauge because it would have had to bridge the Saco River to do so. Instead it came just south of that town to a point where the main line had just conveniently changed to its side of the river.

Our train chuffs up to the wide gauge at an angle, and then squeals around a hard curve to come parallel to it, with a long plank platform between the two roads. A big old wooden station – now no longer manned – spread its roof down along the platform by a long extension to a freight house at the far end. With squeals as shrill as flanges on a hard curve, the camp girls now erupt from the little cars onto the platform. Pretty soon the wide gauge train with its string of enormous Pullman cars comes in. Train men step down and place steel stools, and the girls wave good-bye to the last visible element of their lake-side summer – the narrow gauge train. (We understand from a Wabunaki alumna that it was affectionately called the "Rinky Dink".)

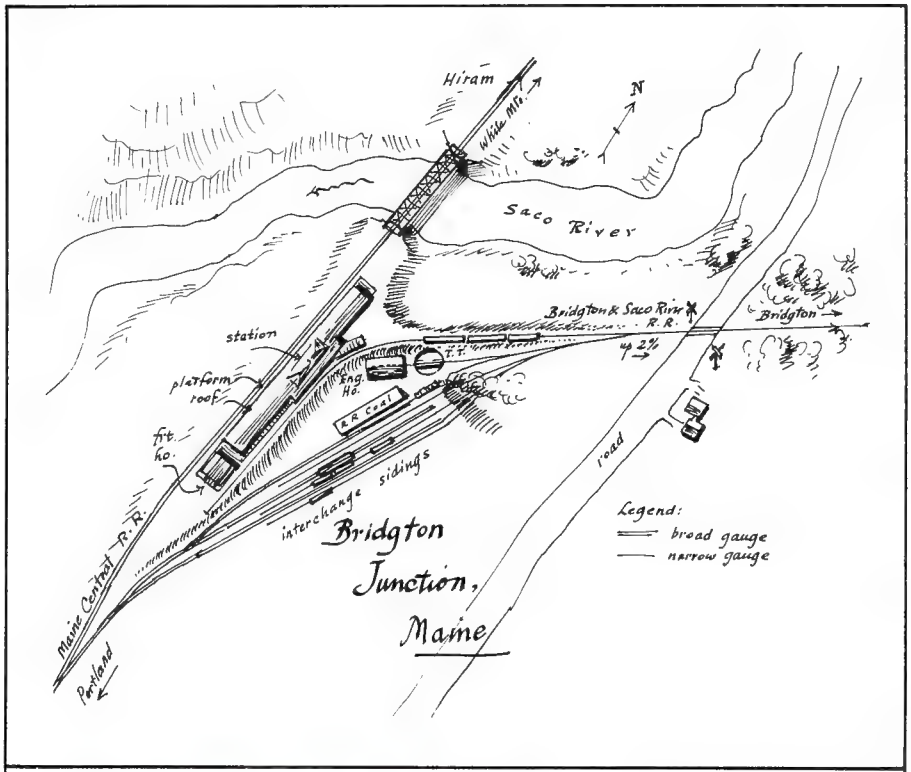
I had thought that we would wait for the train up from Portland and its mail and other items before heading back to Bridgton. However the Chevvy rail car was coming down to meet the Portland train and we would head back as soon as the rail car arrived. Everett Brown now reversed #8 and began to back her and her train away from the station. We backed up the track and onto the grade near the road crossing. Now Conductor Brown (a relative of Everett's) came along setting handbrakes. Number 8 was cut loose and ran over the turnout into the junction yard.

The station track was graded to come onto the main line grade at the same elevation. The yard tracks were at a somewhat lower elevation. Thus when #8 reached the turntable, the station track was a number of feet above the turntable lead and the rest of the yard sidings.

It was all a bit snug – no doubt because the original turntable was built smaller for the little Hinkley locomotives. We jumped down in the pit after the locomotive was centered on the table, and walked her around. Now the engine backed into a small shed which housed the tank. After a good drink, she came out and crossed the table again, and took a turnout into the yard for coaling. Here was the only dual gauge on a Maine two-foot railroad; a standard gauge gondola could off-load into the coaling dock. A little tram car inside brought the coaling buckets into position under the crane; then they were hoisted and swung over the tank. Coal was a major item of expense this far from the Kentucky coal mines.

After coaling, #8 came out of the yard – and in the meantime Conductor Brown had released hand brakes on the cars and let them roll down the station track clear of the yard switch. Thus the train and locomotive had been turned. There was no "runaround" track at Bridgton Junction; for sixty years the cars had been run around the locomotive by gravity. In 1947 I used this method on a model pike in "On2" and it worked out very well.

With #8 coupled to her cars again, we waited for the rail car to arrive. Soon she appeared at the road crossing, ran into the yard to be turned, and we were ready to go back to Bridgton. All this time I had been promoting myself a cab ride, but there had been a problem. Everett Brown was quite ready to have amateurs in the cab – at a price. He had his mind on revenue for the road. However old George Sargent, the fireman, "owned" the left hand side and he set me in there. Everett shot me hard black looks over the boiler head.



Away we went, and it was quite marvelous to sit and watch the Walschaert's gear and the counter weights outside the frames do their intricate dance. In so wide a cab on so narrow a gauge, one had quite a side view of that. Up we chuffed by Rankin's Mill and along Hancock Brook. It was hypnotic. Number 8 rode like a church. The swing motion bolster on her rear truck (back under the long tank) kept her smooth and steady. None of the knee-cap shattering jolts and lurches of the "tender" locos I'd ridden on other roads. None of the sickening whip and sway of rail busses I'd ridden on this very track. We neared Twin Lakes. Everett Brown got up off his seat, put his foot against the backhead and pulled the reverse lever well back over. We came to an easy stop. He started backing out of the right side door. Then I did it.

"What's the matter, Mr. Brown?" I prattled. "A hot box?"

Everett stiffened as if an Indian's arrow had zinged in from the dusk and hit him right in the middle of the back.

"A hot box? Yes, a hot box! Hear that, everyone? We have a hot box!"

By that time I had looked back and knew better. Every car of our train tipped at a different angle. Even our rear truck was off. The rails had spread; all that was on was our lead truck and drivers.

With great care and art – for the rails were too often spiked only to the forest floor itself – the rear truck was rerailed. Then #8 crept back and managed – oh – so gently – to get the old caboose, #101 – back on rails. That was it. The rest of it would be a major job for all hands tomorrow, and another run in steam to guzzle all the profits from this run. We waited in the gathering dusk, swatting mosquitoes, for the rail bus to come up behind us. My brother and my girl produced sandwiches and these were passed around. I recovered a little of the social ground I'd lost over the "hot box".

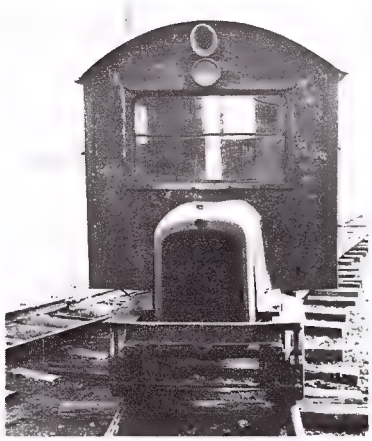
Finally the bus arrived with mail, express, and even a passenger. The bus was left right there at the end of the derailed string of varnish, and everyone boarded old #101 except for the engine crew and myself. In the cab, I was now treated to a real demonstration of what a long-waisted Forney could do on poorly lined track of small gauge. We flew. Everett really crowded the stack. We were well over driver diameter speed (35 inches). Soon we were in Bridgton yard and #8 was quickly turned and put away for the night in her stall.

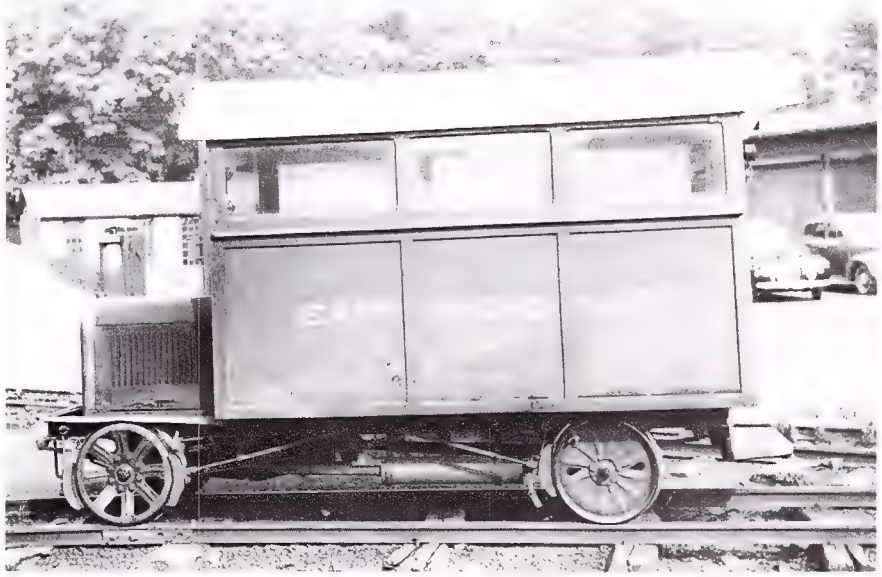
(Next time: Everett talks B&SR locos.)

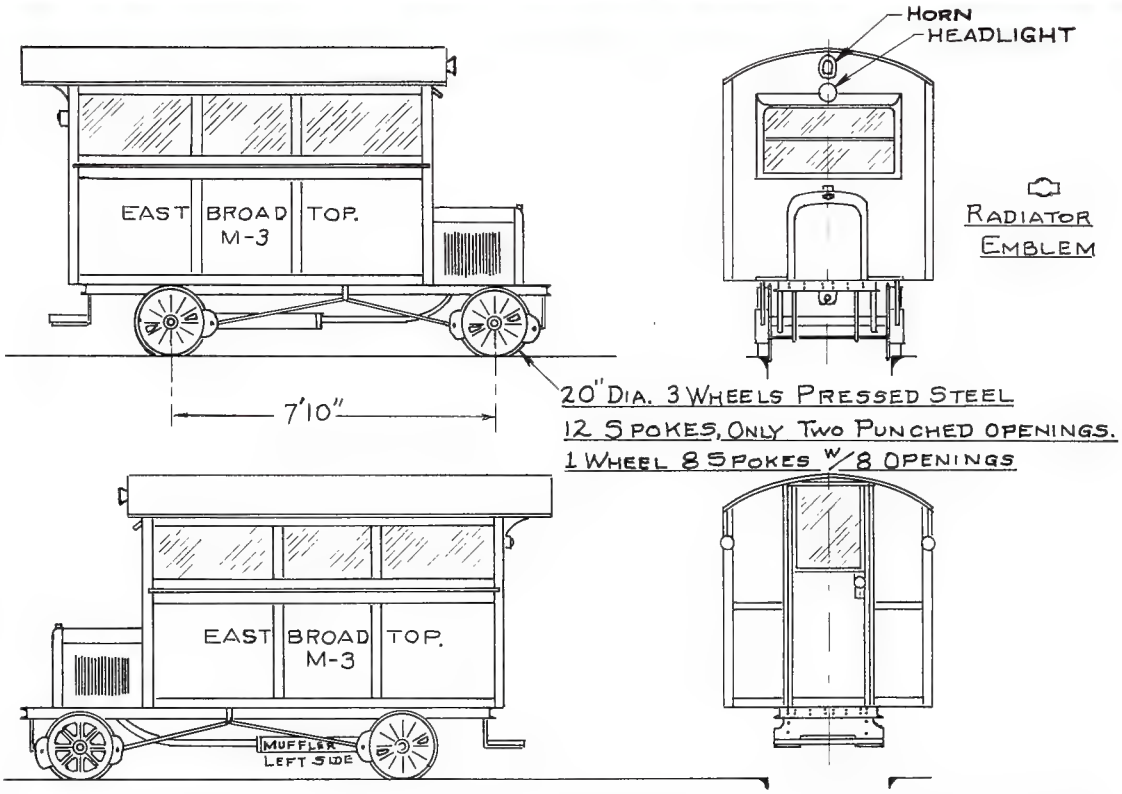
Dick

East Broad Top M-3 Rail Car

by Albin Lee
Photos by Vince Ryan





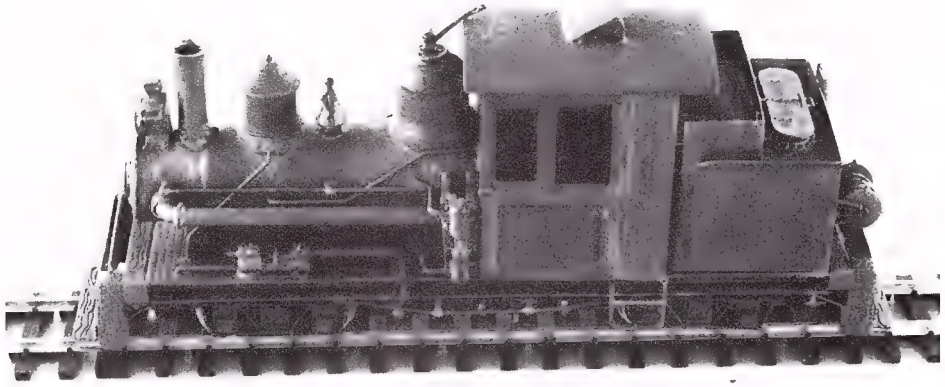

HORN
HEADLIGHT
EAST BROAD TOP. M-3
RADIATOR EMBLEM
7'10"
20" DIA. 3 WHEELS PRESSED STEEL
12 SPOKES, ONLY TWO PUNCHED OPENINGS.
1 WHEEL 8 SPOKES W/8 OPENINGS
EAST BROAD TOP. M-3
MUFFLER LEFT SIDE
0 1 2 3 4 5 6 7 8
3/16 inch = 1 foot

Drawn by Albin Lee from Vince Ryan's photos and drawings, 6-17-79.

GAZETTE GALLERY

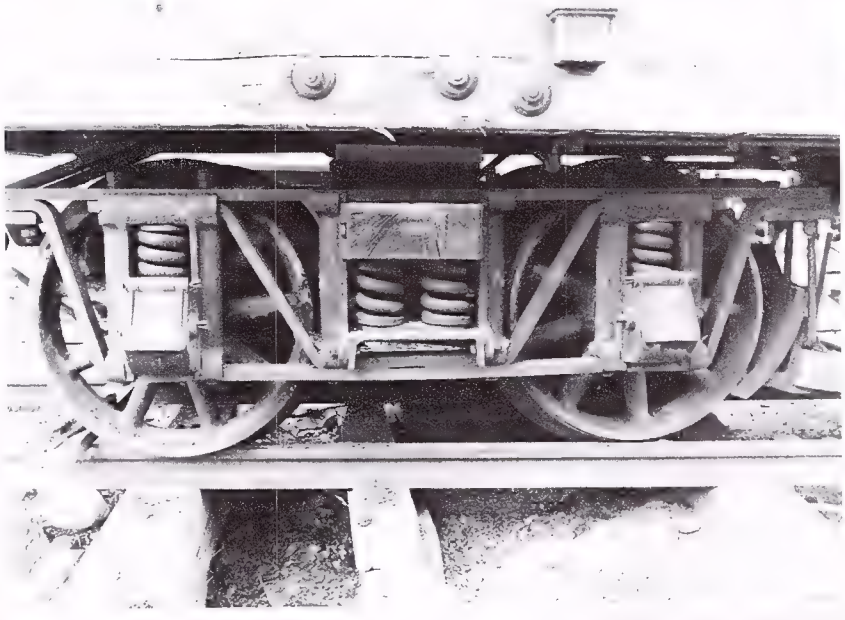
Edited by Gene Deimling

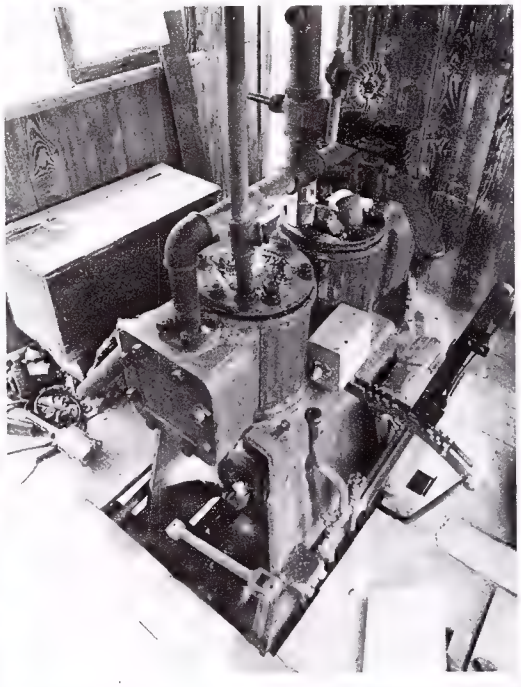
Paul White sent in this photo of his scratch-built HOn3 Dunkirk. Paul was fortunate to be able to obtain many of the parts from North West Short Line and other suppliers. He used a photo to scale the dimensions. *Photo by Pete Walters.*



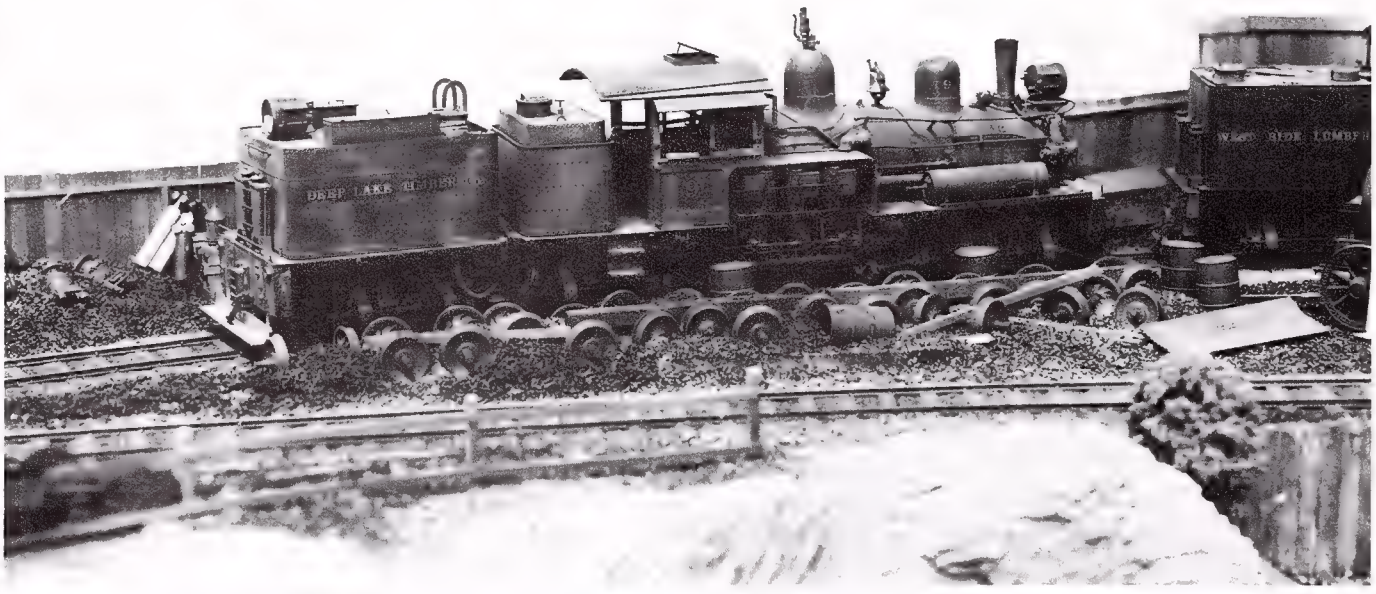
This view of Eric Green's two foot by ten foot HO scale diorama gives you some idea of what a modeler can do when he or she selects the right combination of structures and details. Eric has done a good job of capturing a part of his home state of Vermont for his HOn3 scene. The structures are scratch-built using local prototypes or those of his own design. Acrylic paints were used for nearly all the painting and weathering shown in this view. *Photo by Glenn Moody.*

This little three-foot gauge Class A Climax was found near Nome, Alaska. The locomotive bears the construction number, 313, and was built in 1902. According to the owner, Keith Christenson, the locomotive started out as #313 on the Wild Goose Railway. The owner claims the boiler and underframe are sound and he expects to have this little jewel running by late 1981. *Photo by Stewart Sterling II.*



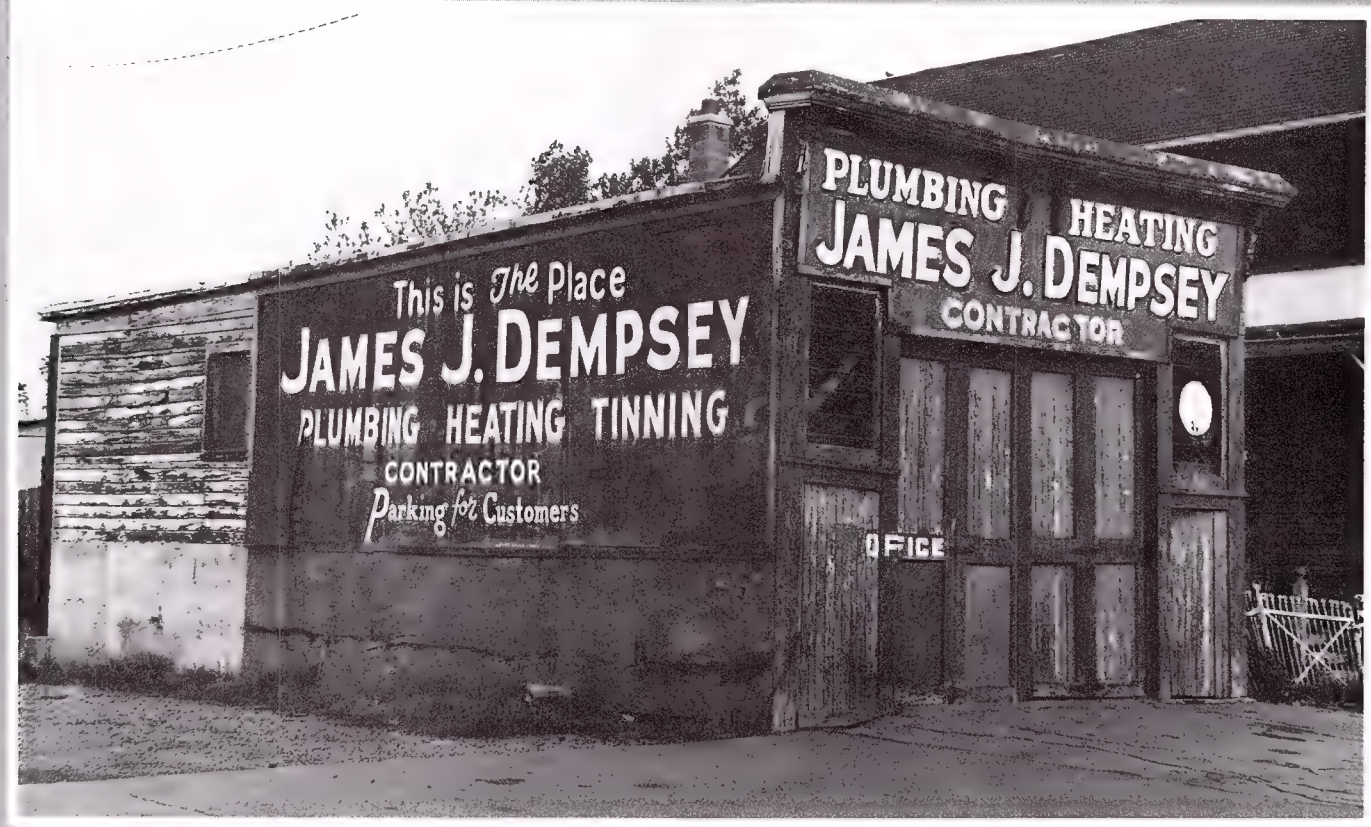


The engine and truck details of Climax #313 are shown in these views. *Photo by Stewart Sterling II.*



Masterbuilder and former **GAZETTE** staffer Gordon Cannon built this On3 three-truck Shay in the early 1970's. Gordon used a few of Kemtron's castings and made the rest from brass. The locomotive won Best in Show in the 1971 NMRA Convention in London, England. The photograph was taken on Bob Brown's Tuolumne Forks diorama. *Photo by Gene Deimling.*

The Jan/Feb 1980 and Mar/April 1980 issues of the **GAZETTE** featured articles by Harry Brunk on the Forks Creek area of the Colorado & Southern. John Maxwell submitted this view of #70 backing around the Forks Creek wye on May 4, 1941. This was on the last scheduled run to Idaho Springs, Colorado. *Photo by John Maxwell.*



The latest photo from Chuck Yungkurth's wandering is a plumbing shop located in Scranton, Pennsylvania. The color scheme is light green with a dark green trim. The signs are black with white lettering outlined in red. *Photo by Chuck Yungkurth.*

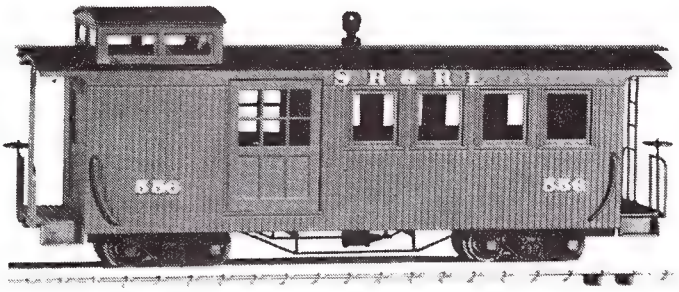
The popcorn wagon photo in the July/August **GAZETTE** Gallery prompted Jackson Thode to submit this shot of a Model T Ford track inspection car used on the Denver & Rio Grande Western. The photo was taken about 1925 while the car was at the Burnham shops. *Photo by George L. Beam, D&RGW Collection. Courtesy of Jackson Thode.*

SANGO

HOn2½

SR&RL CABOOSE

13 ton SHAY



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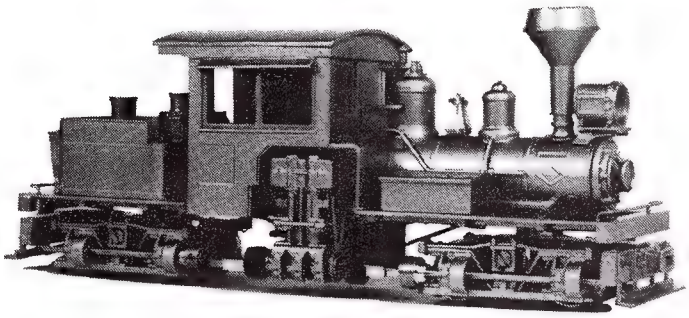

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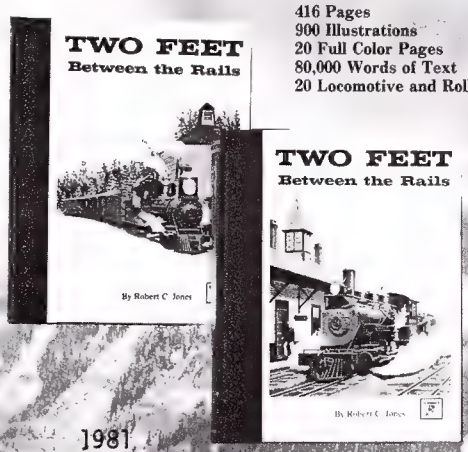

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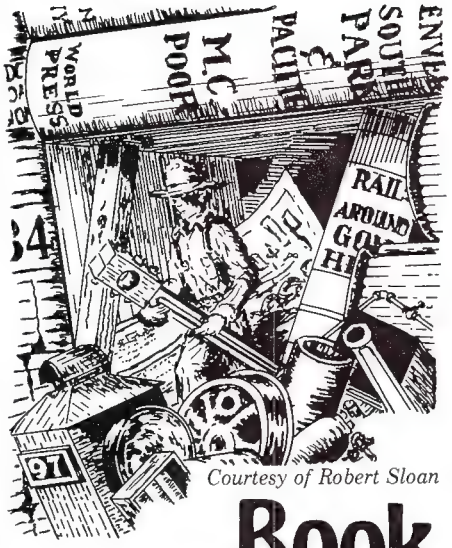

Courtesy of Robert Sloan

Book Reviews

Promontory's Locomotives
Best, Gerald M.
Promontory's Locomotives.
Golden West, San Marino, California, 1980. (43 pages)

Golden West Books, P.O. Box 8136, San Marino, CA 91108 has a new book available which was designed to be sold at the Golden Spike National Historic Site in Utah. The book covers in detail the construction of two full size replicas of steam locomotives. These locomotives are of course the Central Pacific's "Jupiter" and the Union Pacific's #119 which touched pilots at Promontory, Utah on May 10, 1869. This little book has many photos showing the details of the construction of these locomotives. A history of their development and construction is detailed in the text. Side elevation drawing for each locomotive are also provided along with their vital statistics. This is a fascinating book. I read it through at one sitting and enjoyed it very much. The book sells for $2.95. *Bob Brown.*

Reservation Narrow Gauge
Lewis, John E.
Reservation Narrow Gauge; A Chronicle of Biles-Coleman Lumber Company's Narrow Gauge Omak Creek Railroad.
John E. Lewis, York, Pennsylvania, 1980. (133 pages)

John E. Lewis has long been known for his research on logging railroads. His first book on the Biles-Coleman Lumber Company shows this experience. This is the story of Biles-Colman railroad from 1922 to its end in 1948. The text concentrates on the equipment of this modern railroad which was the last narrow gauge logging line in the state of Washington. Since it was such a late "new" railroad historically the railroad used many "modern" pieces of equipment such as trucks, gas loaders, and tractors. This book is a must purchase for logging fans since it is so fall of equipment data. John has produced many very fine drawings as well as several sketches and one color painting. Unfortunately the drawings are not to a standard scale but a graphic scale is provided. The equipment plans consist of: a Class A-20 two cylinder Shay, a Skagit Model M.A.C. 4-20 four wheel speeder, an AH&D Model C Derrick, a Class B-42 Heisler, a proposed but never built Baldwin 2-6-6-2T two versions of Biles-Coleman log cars, and an additional plan for the A-20 Shay showing construction details.

There is an additional section on the Diamond Match Company's Priest Lake Railroad which was the West's most "Modern" logging railroad according to the author. The appendix also has an interesting prototype article on Why Narrow Gauge? This paper bound 8½ × 11 inch book sells for $7.75 and is available from the author at Box 217A, R.D. 10, York, PA 17404. Don't miss it. *Bob Brown.*

The Cumbres & Toltec Scenic Railroad
Wilson, Spencer and Glover, Vernon J.
The Cumbres & Toltec Scenic Railroad, The Historic Preservation Study.
University of New Mexico Press, Albuquerque, New Mexico, 1980. (170 pages)

The Cumbres & Toltec Scenic Railroad is a living monument to the narrow gauge railroads of Colorado. This book is designed to document the C&TSR as completely as possible. The book is well organized and is quite a scholarly study. It starts with a historical chapter on the early history of the C&TSR when it was the San Juan extension of the D&RG Rwy. This history is continued up to the present and covers the founding of the preservation effort to save the line. A careful description of each building and other historic property is presented in the second chapter. The rolling stock is covered in chapter three followed by two chapters on the preservation and restoration of the line. A last chapter covers the documentation available on the C&TSR. These chapters are very complete and have photos illustrating the buildings, bridges, cars and locomotives of the C&TS. Maps showing track plans are provided. For Chama, the various track plans are shown as they changed over the years.

The appendix is also very complete and contains a site and structure list, rolling stock list,and a listing of tools and equipment. There are also sections on the guidelines adopted by the preservation group and the 1972-1992 lease agreement. A bibliographic essay is included followed by a selected bibliography and index.

This volume is a very complete and well documented historic and contemporary study of a railroad very important to any narrow gauge enthusiast. Don't overlook it. The price is $19.95 in cloth and $8.95 in paper. *Bob Brown.*

Model Railroader Cyclopedia
Hayden, Bob (compiler).
Model Railroader Cyclopedia – Vol. 2, Diesel Locomotives.
Kalmbach Publishing Co., Milwaukee, Wisconsin 1980. (160 pages)

Kalmbach Books, 1027 North Seventh St., Milwaukee, WI 53233 has issued the second volume of diesel drawings. These are large format books which are 11 × 14 inches in size. The books contain about 80 drawings of diesel locomotives ranging from small four wheel units to large Union Pacific gas turbines . The plans are all in HO scale and are of the usual excellent **MR** quality. There are many photos of the locomotives in the drawings as well as several introductory chapters on trucks and multiple unit operation. Many of the locomotives shown are early generation diesels. The book sells for $22.00. *Bob Brown.*

Vulcan Locomotives Catalog
Vulcan Iron Works, *Vulcan Locomotives.*
Reprinted by Broadmoor Hobbies, Wilkes-Barre, Pennsylvania, 1980. (160 pages.)

Broadmoor Hobbies, 194 S. Laurel St., Hazleton, PA 18201 has reprinted a limited edition of the 1913 Vulcan Locomotive catalog. The catalog describes the construction of Vulcan locomotives and gives complete specifications for their products. There are many pages of technical information about locomotives in general such as tractive-effort tables and resistance due to grades. There are also several pages of photos showing Vulcan locomotives in use. The bulk of the catalog is devoted to photos and tables on each of the many types of Vulcan locomotives. Vulcan specialized in small industrial locomotives and their complete range is included in this book. There are many large 0-6-0's as well as small tank engines. There are several compressed air models shown and even some electric mine locomotives. Since actual catalogs now command very high prices among collectors it is nice to see this catalog available in a less expensive reprint. The book sells for $22.45. Write to Broadmoor for details or call at 717/459-0538. *Bob Brown.*

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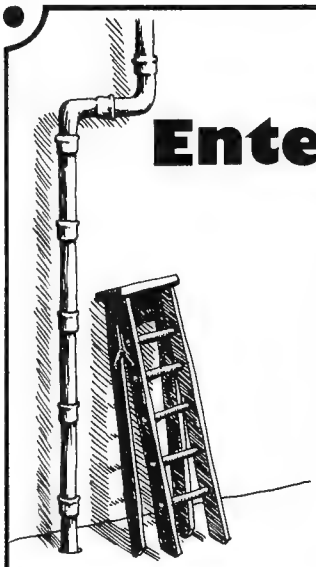

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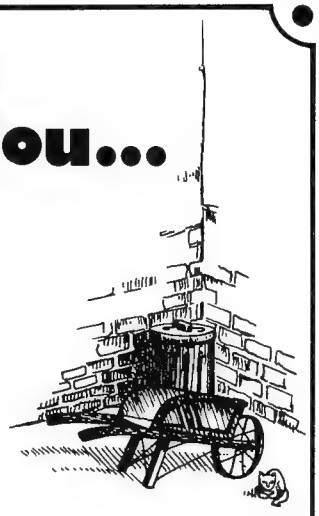

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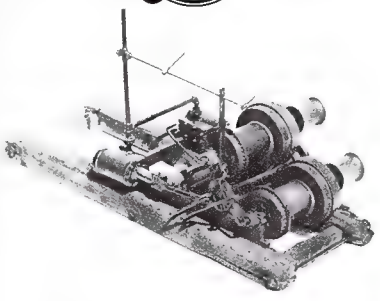

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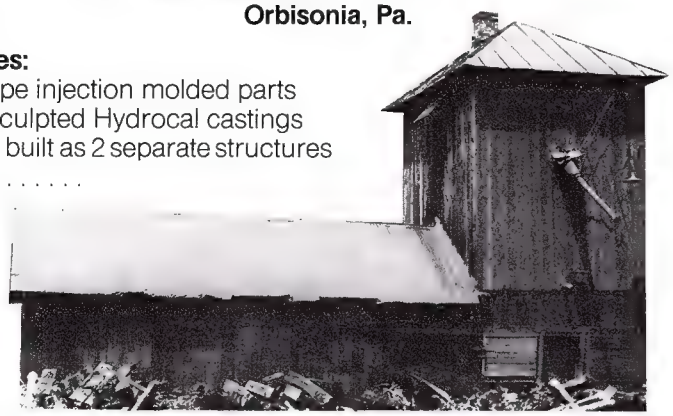

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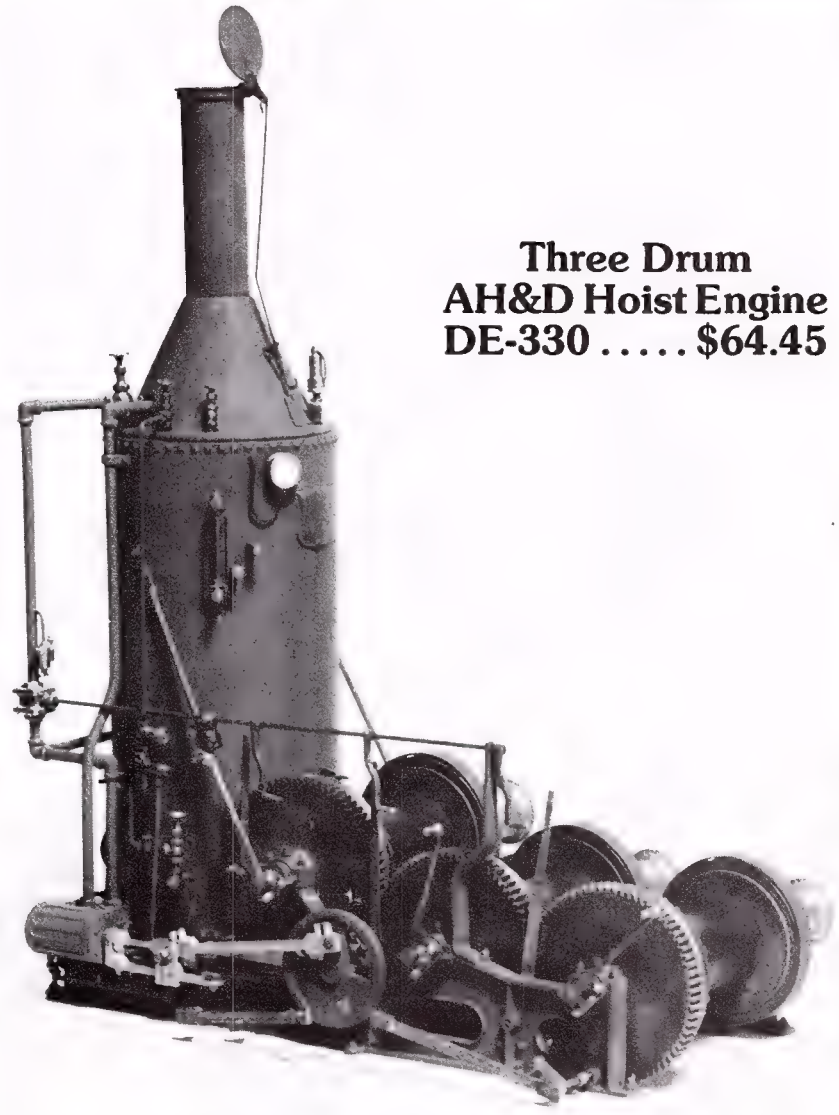

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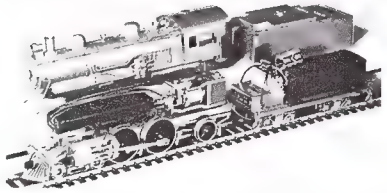

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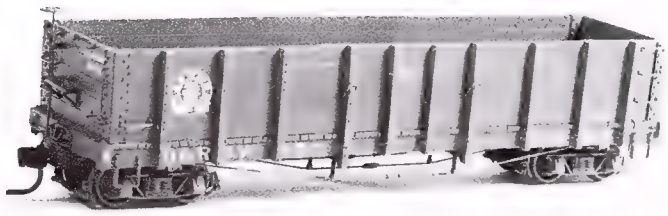

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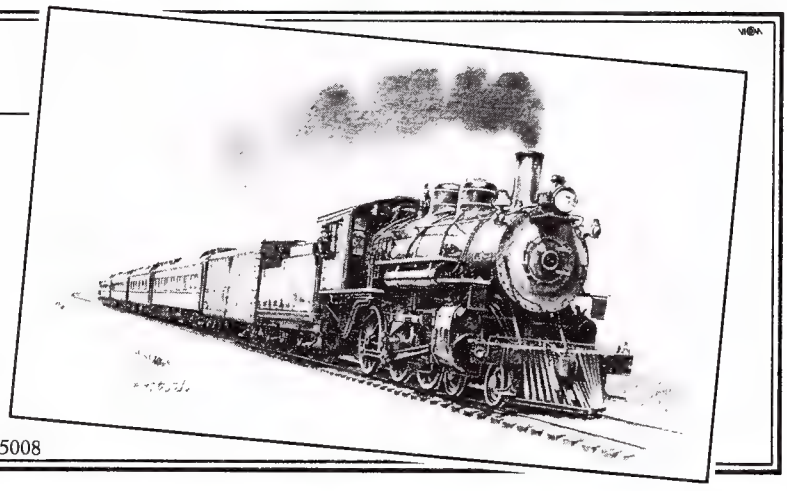

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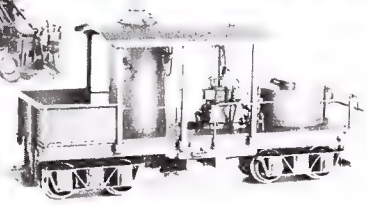

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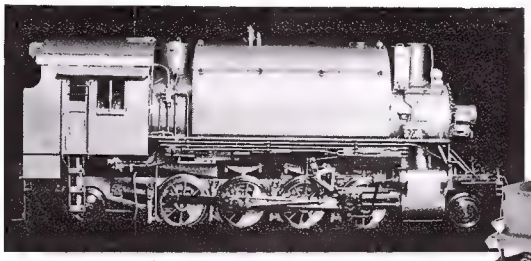

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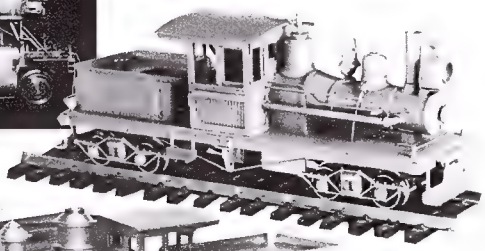

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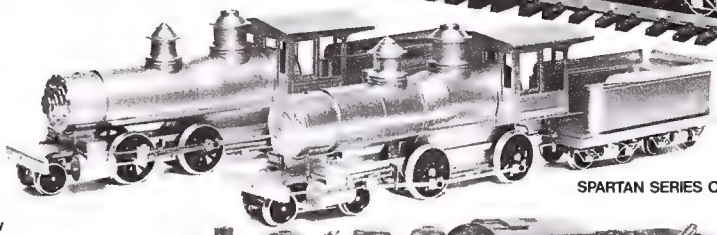

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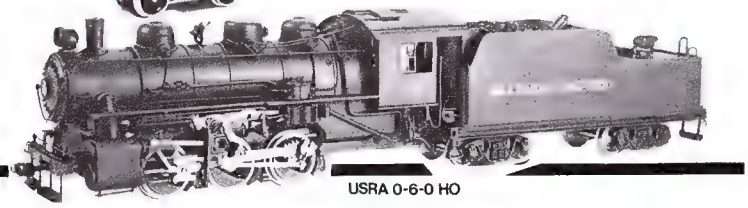

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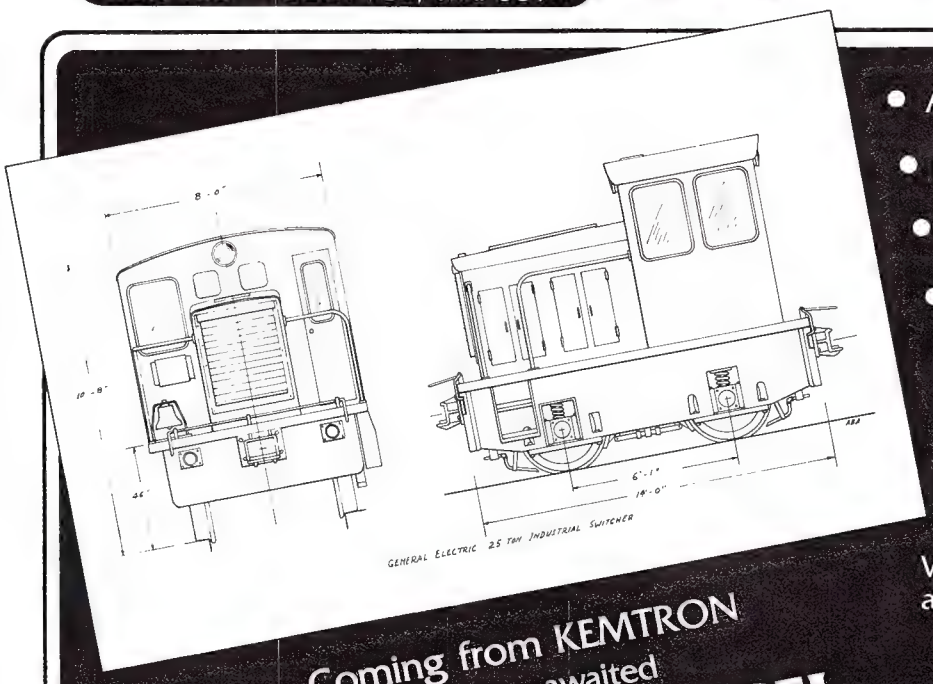

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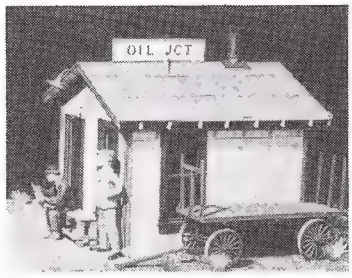

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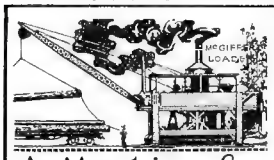

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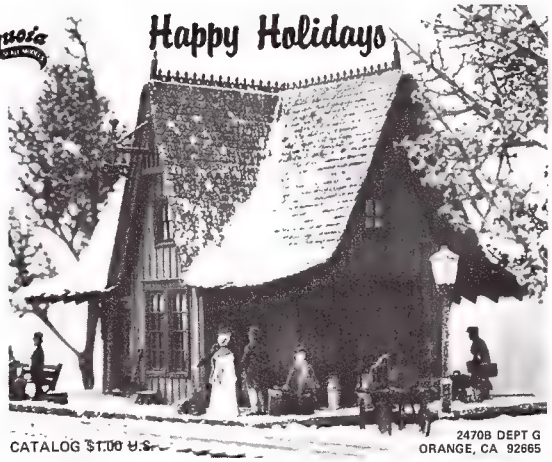

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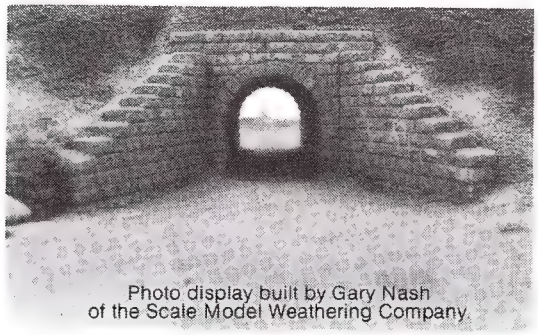

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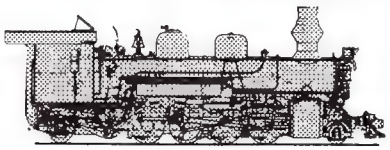

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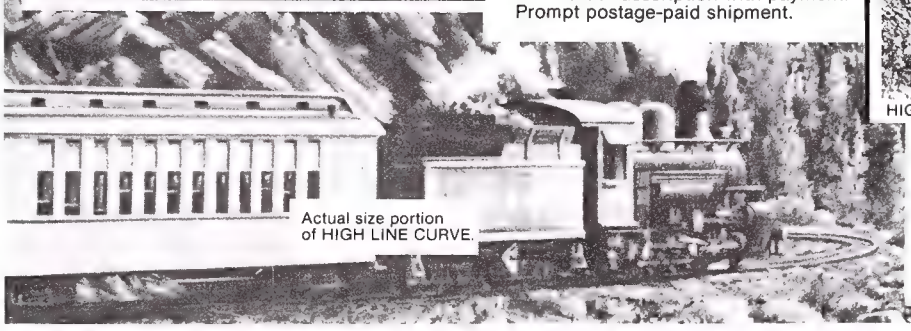

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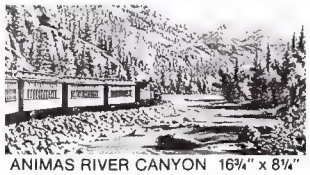

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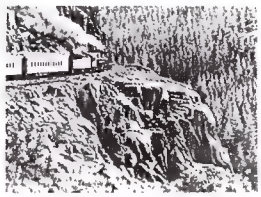

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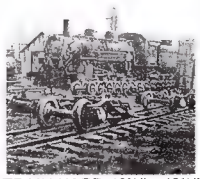

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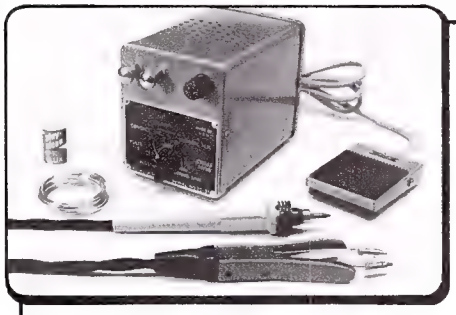

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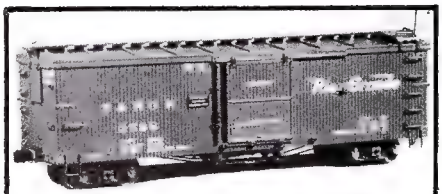

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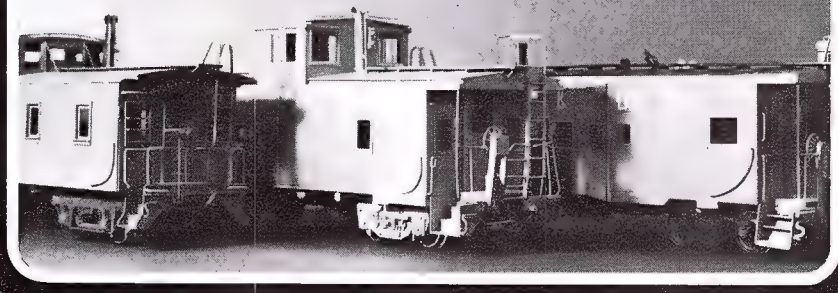

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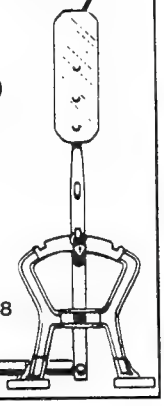

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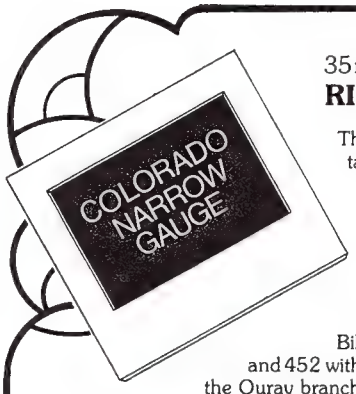

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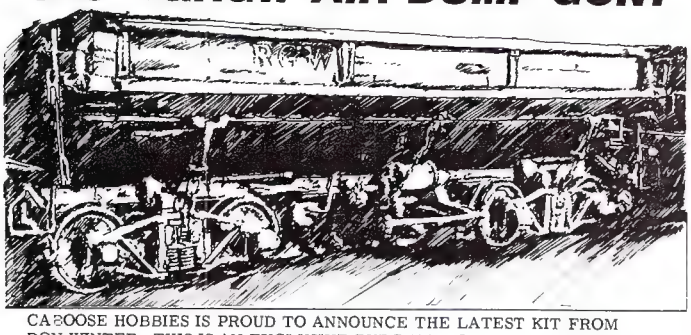

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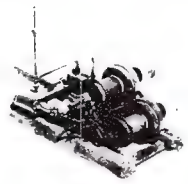

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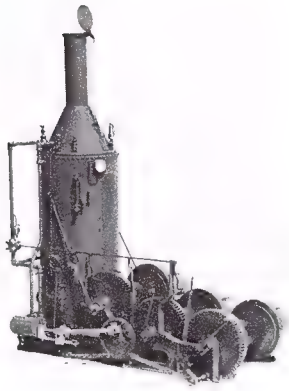

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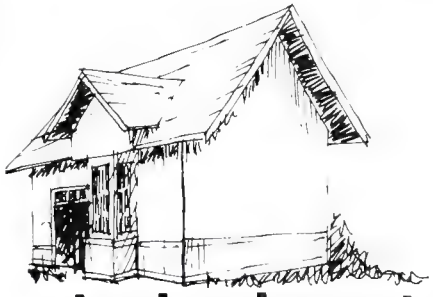

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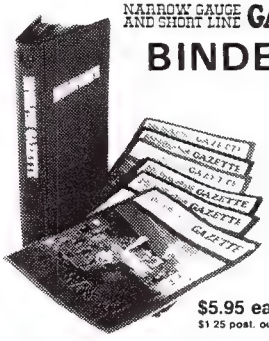

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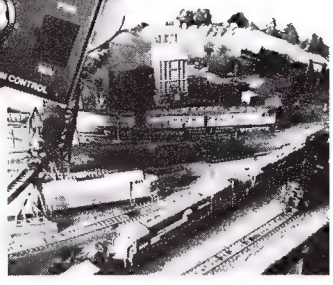

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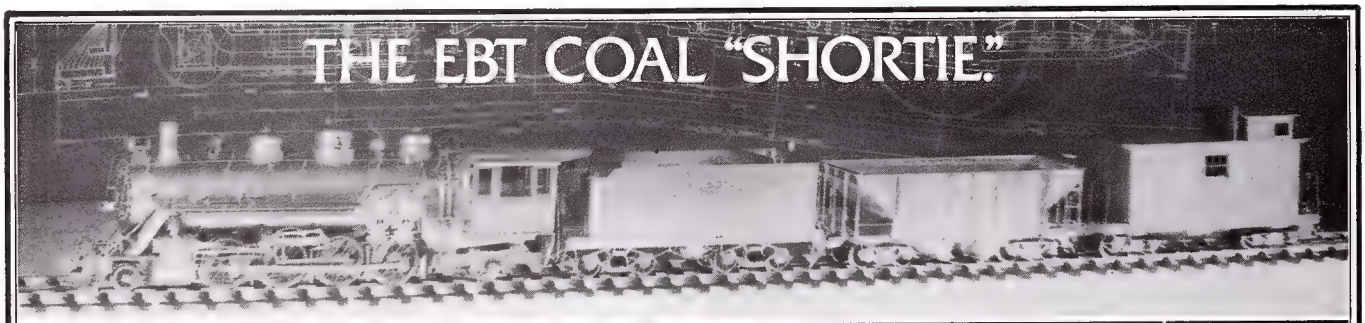

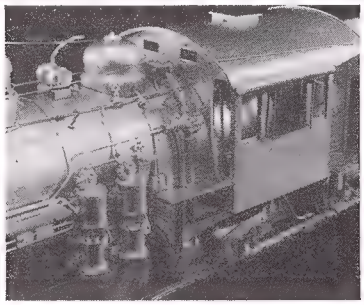

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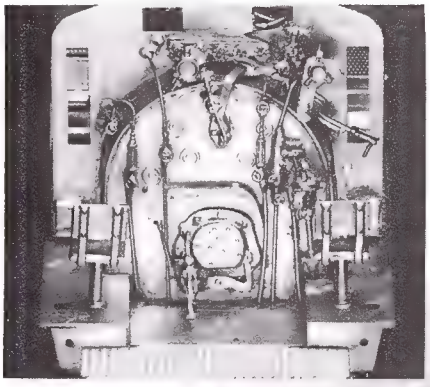

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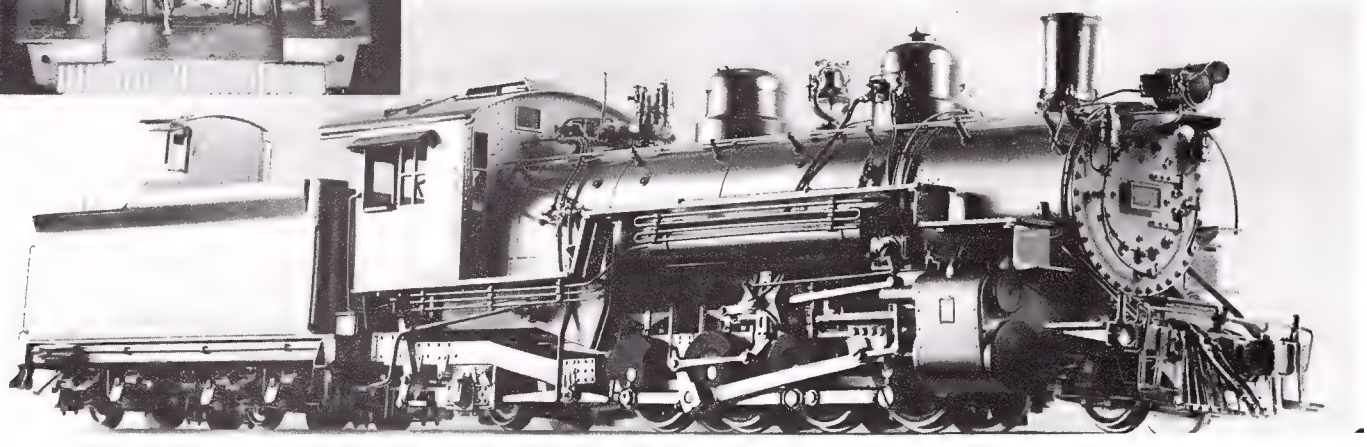

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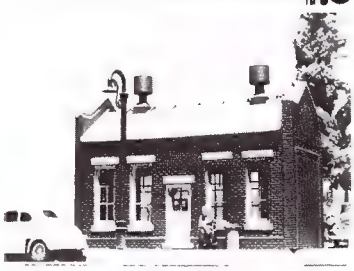

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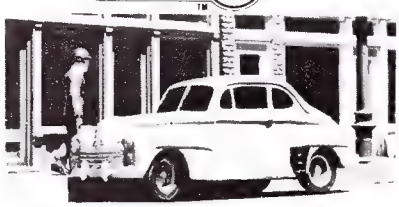

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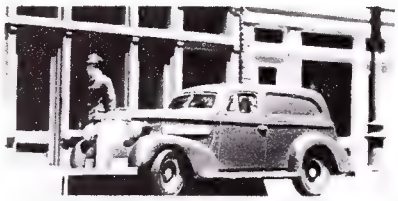

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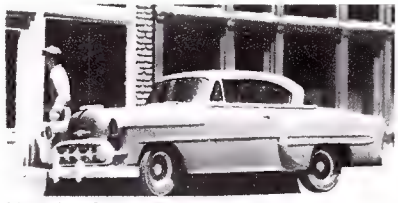

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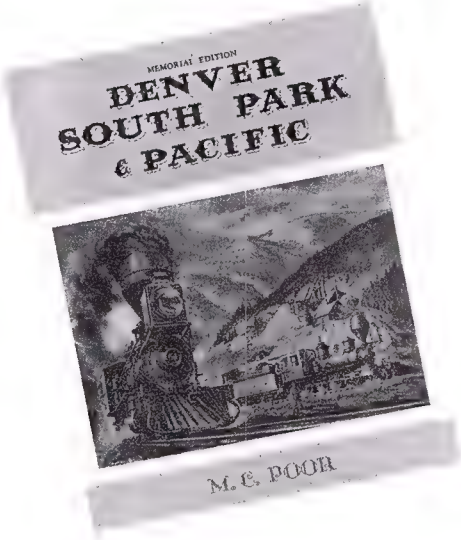

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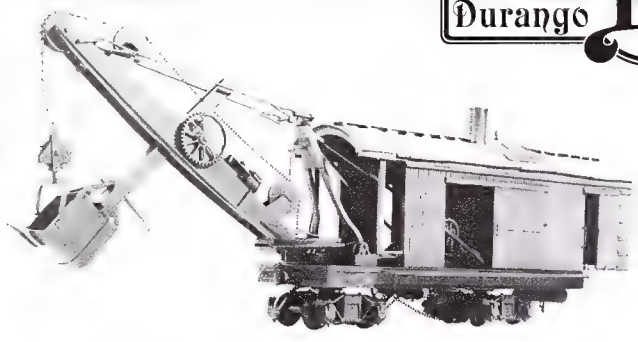

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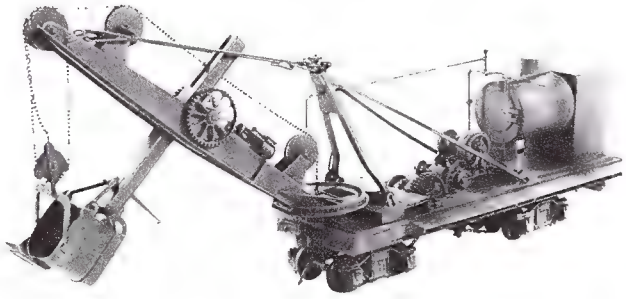

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WANTED: One kit of Kiso 0-4-2T by Sango in ON30. Terrill D. Kerns, Rt. 1, Box 111, Wallace, West Virginia 26448.

FOR SALE: HOn3, all mint, TRO. PFM – Latest run K-27 w/sound, m/p. PFM: Latest run K-28, micromotored w/gearhead, by the Little Depot, C/P. WSM: K-27 modern slide valve, N/P – RGS/C&S 2-8-0, #74, N/P. Key: B-4E, 2-8-0, #71, N/P. Paul Bennett, 313 Vanderbilt Dr., Oxnard, CA 93030. 805/485-1982.

WESTSIDE HASSINGER 4-truck Shay. Test run only (excellent operation). Switching to HOn3. Will consider PFM or West Side HOn3 in trade, or $335.00. Certified cashiers check or money order only. John S. Mills, 19235 Hillsdale Dr., Sonora, CA 95370. 209/532-8088 after 5:30.

NJCB C-21 #361, 145.00. Key K-59 $137.00. NWSL 12T HO V-boiler Climax, $110.00. FED OR-AM caboose $36.00. PFM OR-AM 2-6-2 $95.00, $120.00. Hillcrest Shay $190.00. K-27 or K-36 $285.00 each. Jennings Lumber $70.00. Victorian Station $60.00. Mack Switcher $50.00. Michael Dyer, 23 E. Main, Strasburg PA 17579. 717/687-6954.

ON3 16 TON Tee Boiler Shay $600.00 unpainted good cond. Call after 2:00 p.m. weekdays 916/372-2345. Mr. C. Lix, 912 Anna St., Broderick, CA 95605.

FOR SALE: **GAZETTES** Vol. 1 thru 5 complete; Slim Gauge News Vol. 2 #2 thru Vol. 4 #4; Finelines Vol. 7 #4, 5, Vol. 8 #3, 5, 6 and Vol. 9 thru 11 complete. Also, brass original in boxes (mid '60s) PFM K-28, C&S 2-60 and 2-80. PFM Cowichar Shay. Also, Balboa Slim Princess kits SP Coke, D&RGW Box, Refrigerator Gondola. Original in boxes Kemtron Wabash Mogul, "O" scale kit. Many more items, all in good to excellent condition. Best offer on all or part. J. Luther, 595 John Muir Drive #610, San Francisco, CA 94132. 415/585-0611.

FOR SALE: Howell Day Railbus $35.00, three Howell Day Railtrucks with extra motors $25.00, Akane Ma & Pa 2-8-0 $40.00. George Fizer, Hotel Rd., Box 3128, Deer Park, MD 21550.

SUNSET East Broad Top 2-8-2 #16 new excellent cond. $375.00. W.D. McCoy, 123 Hartranft Ave., Norristown, PA 19401. 215/272-3679 after 5 p.m.

WANTED: Finelines and SGN. Will pay top dollar or will trade. Have extensive collection of back issues Finelines, SGN and **GAZETTE** for trade. My SSAE and list for yours. Jim Brown, 15367 S.E. 22nd Pl., Bellevue WA 98007.

WANTED: **GAZETTE** Vol. 4 No. 5 November/December 1978 good condition. Also photos of D&RGW 3000 series boxcars pre-1920's rebuilds. J. Eager, 196 Hampden Rd., Rochester, NY 14610.

TRADE: Sumpter Valley PFM Caboose, excellent, boxed for C&S #70 coach. Jack Edge, 1100 Lore Ave., #505, Wilmington, Del.19809.

TRADE: HOn3 and HO steam for non-plastic diesel's. Wanted: non-plastic HO. James Reno, P.O. BOx 13311, So. Lake Tahoe, CA 95702.

ON3 SUNSET Westside #12 Shay (3 truck) $625, EBT. #16 2-8-2 $425, RGS #74 $399, Pacific Coast shay (O) $575, Planned C&S 2-6-0 (21, 22?) Balboa DSP&P #71 2-6-0 mint $235, LMB DSP&P 2-6-6t Mason Bogie $375, PFM D&RGW T-12 $535, Westside F&CC caboose $55, CB C&S 4-wheel cab. $55 PFM Water car #0470 $55, Max Grey D&RGW 4-4-0 (early version) extra detail exc. running, paint fair $450, Precision #340, 345, 347, RGS #40 only 100 each loco price TBA. (FALL). Backshop frameless tank car kit $82, Crossing Gate gons $31, boxcars $34, San Juan train due fall price TBA. Whistle Stop Closed coaches $54, water tanks $42. Labelle coaches also this fall. Grandt, powered 0-4-0 loco kits $90, gon kits $30, Bettendorf underframes $15, pass trucks $8, frt, $6 Structure Co., cabins $18, Yorke pool hall $62, Westside tank car kit $35, Hillside cabin LTD 100 $40, MM C&S two story section house $32, 52 ft. turntable $39. C&S gon kits $27, flats $24, CHB AH&D 30 HP. hoist engine kits single drum $44, double $51. Hetch Hetchy water tank kit $15, US Hobbies frt trucks $6. Kemtron pass trks $8, San Juan Eng Sargents station kit $25, enginehouse $20, Chooch Specials switchmans tower (elevated) $21, hand and fuel oil sheds $21, two railroad shanties $16, wood branchline frt station, $45. Sequoia water column $5, add $2.00 post and handling. Many, many parts and details in stock, Grandt, Don Winter, MM, Chooch, BackShop, Precision, bowser (selley), Detail Assoc. 10% disc, on parts PP. over $10.00. Send your wants or call 215/666-6572. Audubon Ry Sply, 2836 Leon Ave., Audubon, PA 19403.

FOR SALE: Kennebec Central On2 combine #3, (built from excursion car), painted, couplers and trucks. Chan Morse Jr., Box 758, Wareham, MA 02571.

FOR SALE: NWSL 18 Ton Shay in HO, Westside #3 Heisler, HO and HOn3 trucks, Westside BN-1 Shay, NWSL Vertical Boiler Climax, HO and HOn3 trucks, 42 NWSL log cars, more FSM kits and **GAZETTES** since my last ad, built-up FSM kits, pictures available. Gary Schmauch, 502 Lafayette St., Tamaqua PA 18252. 717/668-2489.

MUST SELL HO Collection. Very low prices. Eastern and western roads. Brass and plastic engines and cars: Key, Athearn, Westside, AHM, PFM and more. Structures: Finescale, AHM/Tyco, Magnuson, Campbell, more. Miscellaneous slides, books, Paasche equip., tools and much more. Some items are rare, some custom painted. Send SSAE for lists. L. McDonough, 14032 Mandarin Oaks Lane, Jacksonville, FL 32223.

FOR SALE: Mint RGS/D&RGW On3 equipment. SASE for list. Richard F. Mihalyi, 1032 Palms Blvd., Venice CA 90291.

FOR SALE: On2 flatcars with metal truss rods, board by board construction, unpainted, less trucks & couplers – SR&RL 323 $21.50, SR&RL 360 $18.50; F&M and Eustis Railroad flats with metal brake rigging – F&M – $17.50, ERR $22.50. Mark D. Hall, 1063 Washington St., Whitman, MA 02382.

FOR SALE: On2 SR&RL pulpwood racks with metal truss rods, removable racks, board by board construction, unpainted, less trucks & couplers: 325, 326, 332 – $24.50, 219, 221, 240, 264, 303, 309, 328, 330, 357 – $28.50, 253, 254, 263, 268 – $26.50. Mark D. Hall, 1063 Washington St., Whitman, MA 02382.

PRECISION SCALE Porter, 1 Tomalco boxcar. 303/667-8248. Gene Howerton, Box 554, Loveland, CO 80537.

GALLOPING GEESE #2 and #5 (Lambert), HON2½ and HOn3, $145 ppd. John Cowgill, 8058 Oak Meadow Court, Citrus Heights, OH 95610.

CUSTOM BRASS C-21 OWNERS: Your HOn3 C-21 rebuilt with counterweights properly attached and requartered, Kemtron C-16 motor/gearbox unit installed, plus cylinder, crosshead guide, and valve gear hanger assemblies rebuilt. $100, including parts. Also have one each #360 and #361 mint with above modifications for $225 each or $100 and your CB C-21. Send SASE for more information. Tom Madden, 305 Mohawk Drive, Boulder, CO 80303. 303/499-3419.

FOR SALE: **GAZETTE** individual issues Vol. 1 through Vol. 5. SASE for list. Gil Hulin, 4891 Donald St., Eugene, OR 97405.

D&RGW ON3 FOR SALE: K-28 (Sunset); Water Car (PFM); Texaco 2-dome tank car (ADDM/Precision Scale); Long CAboose #0584, 0587, 0589 (Custom Brass/GOM). Mint condition. Bob Hess, P.O. Box 16, Fairfax Station, VA 22039. 703/830-1601. Prefer sale as a lot only. $850.

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FOR SALE: Railroad books including *DSP&P Pictorial* $150, *Colorado Midland* $95. LSSAE for list. R.H. Roass, 410 Sackett Point Road, North Haven, CT 06473. 203/281-2769. 8 a.m. – 4 p.m.

HO LOGGING BRASS: NWSL Weyerhaeuser #108 2-6-6-2T $325 (painted with can motor); NWSL Rayonier #8 2-6-6-2T (painted) $300; NWSL Peninsula Terminal #104 2-6-2T $160; NWSL Willamette $450; PFM Pacific Coast Shay $300; PFM 3T Shay $300; PFM Hilcrest Shay $250; NWSL 18 ton Class A Shay $225; PFM 2t Climax $275; PFM Heisler $265; NWSL Moving car; NWSL NP Caboose; NWSL Long-Bell Caboose; 43' NWSL Skeleton Log Cars. Certified Check or Money Order. Dwane Williams, 925 NW 12th, Canby, Oregon 97013.

WANTED: HOn3 C&S equipment especially Balboa cabooses and Leetown pilot plows. Any condition considered. Kevin Schindler, 243 W. Puente St., Apt. E, Covina, CA 91723.

WANTED: Old stock certificates & bonds – any quantity! Also annual passes & timetables. Please write! Ken Prag, Box 531NG, Burlingame, CA 94010.

WANTED: WP&YR photos before 1960 also BYN riverboats. Bernard J. Kern, 1609 W. Fifth Ave., Columbus, OH 43212.

IHM K-37 excellent running, mint condition $825 or make offer. Will also consider trading for HOn3. G.A. Matzinger, 2127 Hoxie Ave., Richland, WA 99352.

FOR SALE: Hawaiian Narrow Gauge – "Sugar Trains Pictorial", Autographed. Detail Plans $19.50. Narrow Gauge in a Kingdom, The Hawaiian Railroad Company 1878-1897. J.C. Conde, P.O. Box 146, St. Mathews Sta., San Mateo, CA 94401. Calif. Res. add 6% tax and $1.00 P&H.

AIR HORNS. Large marine or locomotive air horns wanted by collector. Jack Hardman, 140 Forest, Glenridge NJ. 201/429-8880.

OLD SHAYS WANTED: Any/all makes, scales or condition including basket cases, parts and boxes. Charles Crehore, Suite 2300, 100 W. Washington, Phoenix, AZ 85003.

FOR SALE: On3 brass & kits, shays, Heiser, C-16. Some with sound and customized. Custom built Kiso 0-4-2's in both On30 and On3. SSAE for list. Earl Martin, 11808 Timber Ln., Rockville, MD 20852. 301/468-6282.

FOR SALE: On2 SR&RL 67 Class boxcars with interior detail, opening doors, metal truss rods, less trucks & couplers, unpainted, $38.95 each. Mark D. Hall, 1063 Washington St., Whitman, MA 02382.

TWEETSIE COUNTRY: East Tennessee & Western North Carolina. Autographed copies of this classic hardbound 232 page book. $20.00 American West Books, 9143 Hyland Creek Road, Bloomington, MN 55438.

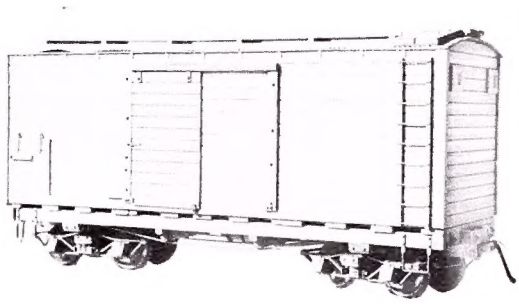
VIRGINIA & TRUCKEE: Six original 1883-1911 waybills, receipts, orders (each different) from Virginia City. $5.00. American West Books, 9143 Hyland Creek Road, Bloomington, MN 55438.

S SCALE standard gauge arch bar trucks with code 110 wheels. 42" drivers too. SSAE, Miniature Machine, 16041 Penn Ave., San Lorenzo, CA 94580.

NN3 BOX CAR KIT, Frt. & Pass. trucks, SSAE for sheet. Nelson W. Gray, P.O. Box 84, Jamesville, NY 13078.

STOCK CERTICATES & BONDS pre-1930 bought, sold and traded, Buttonwood Galleries, P.O. Box 1006F, Throggs Neck Station, New York, NY 10465.

CUSTOM STRUCTURE BUILDING: All types. Engine service facilities, bridges, town, industrial and railroad wayside structures. HO and O kit building service offered (Campbell, FineScale, etc.) Send 50¢ for illustrated brochure to Brum's Detail House, 16 High St., Peterborough, NH 03458.



On3 WEST SIDE

* WS Boxcars... we're making just 100 each of box #1 and box #3. All the right detail. Kappler, Grandt and Simpson components including the correct truck sideframes! Box #1 is a re-run kit with many new features. Box #3 is a all new kit! November 1980 delivery. 36.95.

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* NOTE; Our new WS trucks in On3 will be available seperately with Grandt wheelsets after the boxcars are shipped in November. 10.00 per pair.

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A few of the following limited run kits remain; When these are gone you can pay collectors prices...WS block car @30.00, WS 24' early flat @15. Gon 276 or gon 15 @ 22.00. The HOn3 Powderhouse plow @29.95. AND... the Hobart Estate #3 side door caboose in On3 @33.00. (very nice!)

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FOR SALE: HOn3 PFM Mich-Cal Shay $335; Mason Bogie 2-6-6T $300; Sumpter Valley 2-6-6-2 w/Backhead $375; Westside: WSLCO 3 Truck Shay #8 $250; K-36 Core-less Mtr. $290; C&S #74 $180; Key C-18 $140; C-17 $190; Prec. Scale Co. D&RGW/RGS 0-6-0T $150; Soho 4 D&RGW #319 Coaches $45 ea. Ron Ippoliti, 16800 Devonshire #300, Granada Hills, CA 91344. 213/368-5657.

TRADE: HOn3 SP for Ma & Pa or V&T; also collectors HO for turn-of-century HO. James Reno, P.O. Box 13311, So. Lake Tahoe, CA 95702.

WANTED: Info on Tintic Mtn. Mining District around Eureka, Mammouth, and Silver City, Utah. Especially Tintic Mtn. Mining RR. Write (do *not* telephone): James E. Rosston, 67 Sea St., Apt. #A4, Hyannis, Mass. 02601.

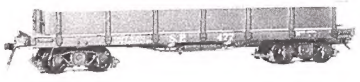
I AM FICKLE as the rest of you! Sell $221 worth of Sandy River Car Shops rolling stock kits for $100. Other two foot items. Don Winter, 655 Newport Street, Denver, CO 80220.

FOR SALE or trade. HO and HOn3 Brass. Want "O" or On3 Scale. SSAE for list. F.R. Woolard, 710 West North St., Greenfield, IN 46140.

FOR SALE or trade for HOn3 track, locos, rolling stock, and structures: On3 Sunset K-28. Excellent condition, painted but not weathered. $650.00 plus original box. On3 PFM K-27. Fully equalized version. Excellent condition. Painted and lettered and weathered as RGS #455, but no modifications made. Beautiful. $1,000.00 plus original box. On3 Custom Brass TCX Double Dome Tank Car. Excellent condition. Painted not weathered. $100 plus original box. On3 F&CC Caboose. Westside. Excellent condition. Painted and lettered and weathered as RGS 0402. Beautiful. $100 plus original box. On3 Durango Press RGS 01 Drag Flanger Kit. Untouched in original box $60.00. Send SASE for more complete list. Send $1.00 for photo of any above – refundable with purchase. Max Corey, 1801 Atkinson Dr., Anchorage, AK 99504.

CANNOT SOLDER! Trade Kemtron On3 O60 with frame barely started, rest untouched, for Grandt 040 and power kits. HOn3 for sale, SSAE for info. Clay M. Gratz, 176 W. Spaulding, Battle Creek, MI 49017.

On3
S.P. NARROW GAUGE
Flat Bottom Gondola
(early version)



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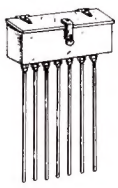

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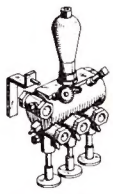

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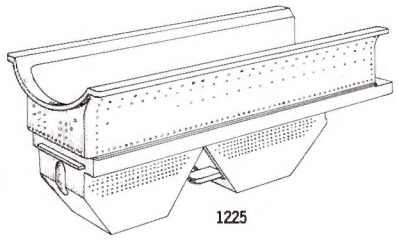

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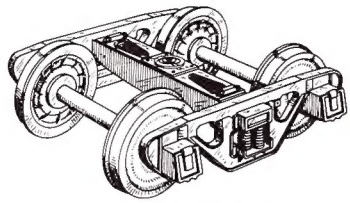
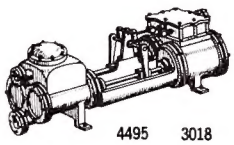


9050 w/24" wheels,



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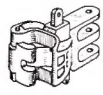

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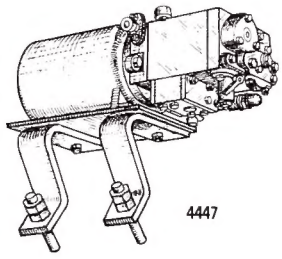

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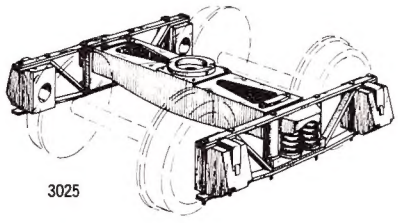

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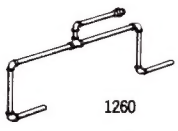

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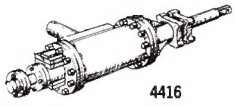

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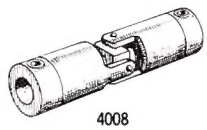

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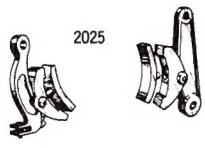

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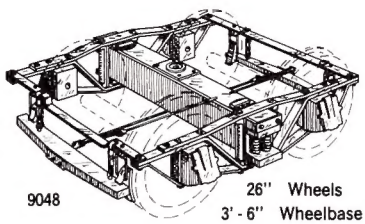
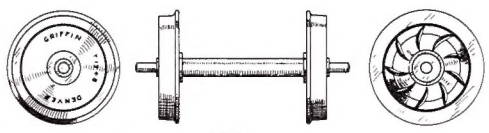


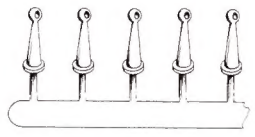
9048

26" Wheels
3' - 6" Wheelbase

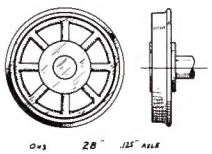


2.6"

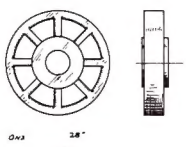
9063



4097 Brass 4097-1 Plastic



4295-1



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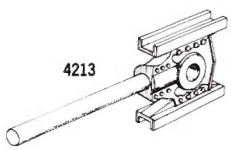
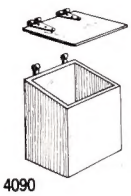
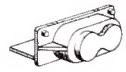


4213



4090

3141



4212

DRAWINGS NOT NECESSARILY TO SCALE

PSH-4478	Box type gravity feed cylinder lubricator	$3.00
PSDR-1019	Baldwin bell, top mount, working, 8mm	$3.00
PSHO-3004	22" working bell, HO	$2.25
PSDR-1225	D & RGW C-18, 19 fire box assembly	$7.50
PST-9050	On3 Vulcan cast steel trucks for East Broad Top	kit $12.95
PSH-4495	Fair Banks Morse large water pump used for fire train equipment	$5.75
PSHO-3018	Steam driven water pump w/valves, HO	$3.00
PSH-4443	Train control box, Pennsy style	$3.75
PSH-40822	O-On3 MCB-AAR standard working coupler, comes with link and pin shank, slotted knuckle	pr. $2.75
PSH-4097	Handrail stanchions, long	(10) pkg. $2.00
PSH-40971	Handrail stanchions, long, plastic	(20) pkg. $1.50
PSSH-8063	Delrin 2:1 cross box, gear and pinion assembly	$4.25
PSDR-1260	D & RGW C-19 No. 345 single stage air pump plumbing cluster	$1.75
PSH-4416	Franklin power reverse mechanical operated	$3.00
PSH-4008	Universal ball joint, steel	$7.75
PSS-2025	Sp Baldwin 0-6-0, 2-6-0 brake hanger and shoe assembly w/plastic shoes	(6) pkg. $3.75
PSHO-3041	Bullseye lubricator, triple feed, HO	$2.00
PSK-9048	Arch Bar truck kit, On3, modified PC&F, w/ beams and 26" wheels	kit $14.95
PSK-9063	Griffin Denver On3 machined brass wheel centers, plated tires, insulated, D & RGW	$5.50
PST-9021	3'7" D & RGW Arch Bar truck w/brake rigging and 26" wheels, all brass w/delrin brake shoes	$19.50
PSH-4295	Unmachined lead truck 30" wheels, spoked, O and On3, Pkg. 4	$2.75
PSH-4295-1	Lead truck wheels, 30" spoked, machined w/ stainless rims, 1 axle, On3	$7.75
PSH-4214	Tender end beam buffer plate, std. gauge	$1.75
PSH-4213	Alligator crosshead used on large std. gauge, nickel silver,	pr. $4.00
PSH-4090	Sand/wood box, w/working lid, sheet metal type	$2.75
PSHO-3141	Link and pin extended knuckle dummy coupler	pr. $2.00
PSHO-3025	Arch Bar truck kit, w/wheels, HOn3	kit $6.75

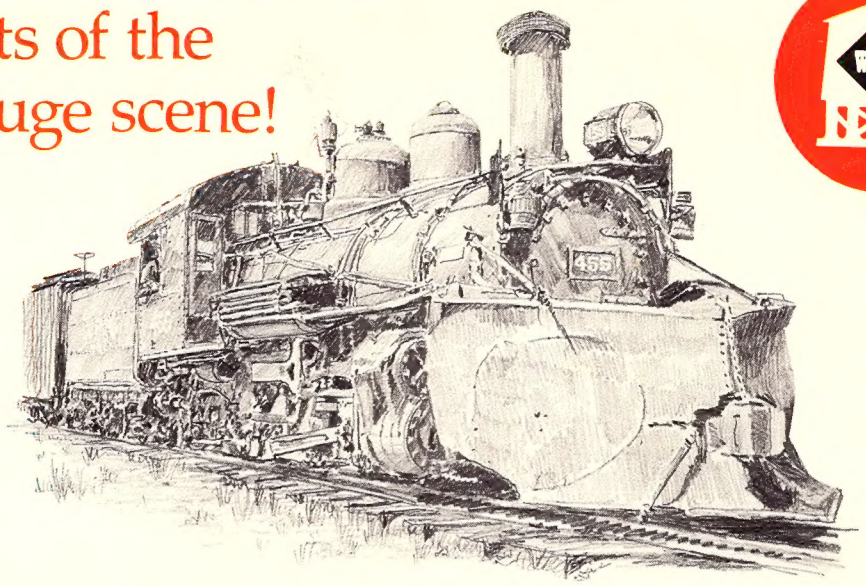
master charge THE INTERBANK CARD OR VISA

* 3000 series = HO
All others = O

SEE YOUR LOCAL PSC DEALER, FIRST!

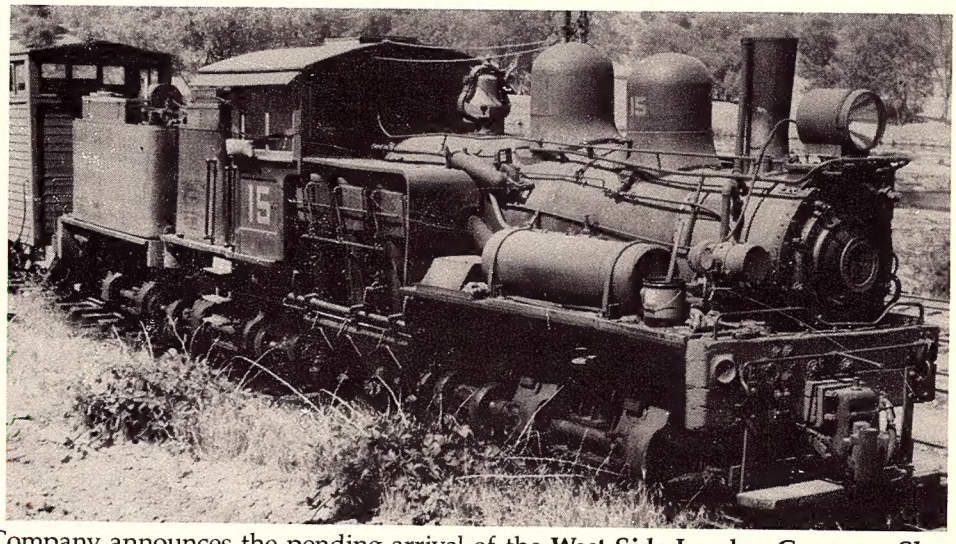
WESTSIDE MODEL COMPANY

...all aspects of the Narrow gauge scene!



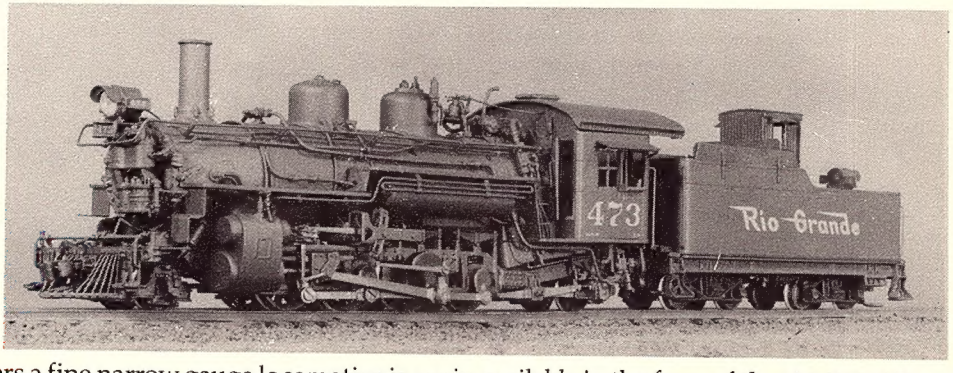
The 455

For the Rio Grande Southern fan "et al," Westside brings forth the **"455"** with its **steel cab.** Westside's models of the K-27 need no introduction to the narrow gauge fraternity as all versions/eras have thus been modeled by Westside. The "455" was the last of the breed...a most interesting steam engine. HOn3



WSLC 15

The Westside Model Company announces the pending arrival of the **West Side Lumber Company Shay Number 15.** This particular geared locomotive was the last Shay owned by the company and is still in service on the West Side & Cherry Valley operation at Tuolomne, California. This engine will be available in HOn3 for West Side collectors and in HO gauge as the C-3 Shay. As usual, this will be a Nakamura built locomotive – indicating the utmost in craftsmanship.



The K-28

At your Westside dealers a fine narrow gauge locomotive is again available in the form of **the D&RGW K-28.** This **masterpiece** in HOn3 modeling is **unsurpassed by any previous K-28** thus far produced. Smooth operation and a wealth of detail accent this model of the D&RGW's only active steam locomotives.

WATCH FOR THE AMERICAN GARRETT in HOn3 - a 2-8-2+2-8-2!

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